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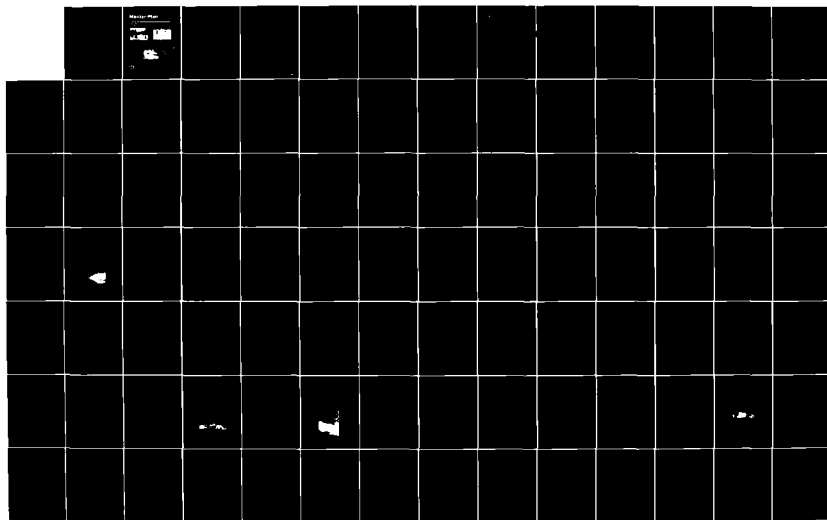
MASTER PLAN: LAKE BARKLEY CUMBERLAND RIVER KENTUCKY -
TENNESSEE (U) CORPS OF ENGINEERS NASHVILLE TN NASHVILLE
DISTRICT JAN 83

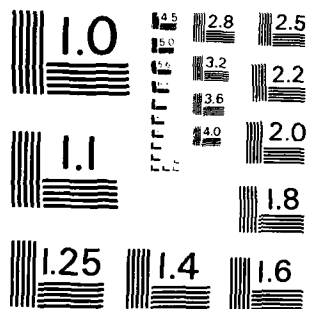
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Master Plan

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Lake Barkley Cumberland River, Kentucky-Tennessee



Zone 1
Intensive Recreation



Zone 2
Resource Related
Recreation



Zone 3
Limited Use Recreation

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1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
	AD-A125774	
4. TITLE (and Subtitle) Master Plan: Lake Barkley, Cumberland River, Kentucky - Tennessee.		5. TYPE OF REPORT & PERIOD COVERED Master Plan Update.
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s)		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer District, Nashville P. O. Box 1070 Nashville, TN 37202		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
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18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Lake Barkley, Kentucky. Interpretative programs. Cumberland River Recreation. Land Between the Lakes. Master Plan.		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Original Master Plan for Lake Barkley was approved in 1962. The most important goal of this updated Master Plan is to consolidate the existing recreational sites and to relocate some facilities in order to provide optimum recreational opportunities and services in those areas with most intense visitation. Major visitation and use patterns were analyzed to assess current and future needs. The general purpose of the plan is to insure continuity in development,		

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operation, and maintenance of Lake Barkley. The recreational opportunities are to be suitable to the varying characteristics of the lake.

Recommendations will be implemented in 3 phases. Phase I will involve limited relocation of facilities; closures; reorganization of roads, parking, etc.; and other minor improvements. Phase II will involve larger relocations and major improvements. Phases I and II will be implemented within the ongoing operation and maintenance program. Phase III will require cost-sharing partners and will involve major expansion of facilities and development of new sites. Phase III could be, to varying degrees, concurrent with Phase I and II.

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ORDPD-R (12 Nov 82) 1st Ind

SUBJECT: Lake Barkley, Kentucky and Tennessee--Final Draft of Master Plan
Update

DA, Ohio River Division, Corps of Engineers, P.O. Box 1159, Cincinnati, OH
45201 7 January 1983

TO: Commander, Nashville District, ATTN: ORNED-P

1. The master plan is approved subject to the following comments.
2. Para 7-08, page 217, Wildlife and Fisheries Management Plan. The second paragraph indicates that there is an area managed for wildlife by the Corps similar to areas managed by four other wildlife agencies. The area should be identified and discussed.
3. Para 8.03, pages 260 and 261, Forest Management. A timber management policy is outlined which prohibits commercial timber production on a sustained yield basis. This policy is inconsistent with the policy established by Congress in Public Law 86-817 (74 Stat 817) which provides that sustained yield programs will be created. If circumstances at Lake Barkley preclude such programs, the master plan should acknowledge that the law was considered and state the reason that compliance is not possible.
4. Para 8.07.05(1), Real Estate Instrument. The words in line two reading "and other activities involving a change in land form" should be changed to "other activities involving use of project fee and easement lands."
5. Five sets of revised pages should be furnished to ORDPD-R.

FOR THE COMMANDER:

wd incl


JIMMY F. BATES
Chief, Planning Division

CF w/incl (trip):
DAEN-CWO-R

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DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1076
NASHVILLE, TENNESSEE 37202

IN REPLY REFER TO

12 NOV 1982

ORNED-P

SUBJECT: Lake Barkley, Kentucky and Tennessee - Final Draft of Master Plan Update

Commander, Ohio River Division
Attn: ORDPD-R

1. Reference is made to:
 - a. ER 1120-2-400 Recreation Resources Planning
 - b. ORDR 1105-2-2 Planning Program Management
2. Reference 1a requires a Master Plan update be made every five years or as necessary. Reference 1b requires an update when the plan no longer meets the resource use objectives of the project. The Master Plan for Lake Barkley was prepared in 1962 and only updated by supplements since then. District Planning, Real Estate, and Resources Management personnel all agreed with the need to update the Barkley Master Plan. Preparation of the update was monitored by an Ad Hoc Committee containing representatives from ED-P, ED-D, RE-M, and OP-R.
3. The subject Draft Master Plan update is inclosed for your review and approval. The plan was prepared under an A/E contract costing \$97,000 and has been fully coordinated with all in-house elements as well as potential local cost-sharing sponsors. We estimate administration of the contract cost was about \$10,000. Modifications discussed during our on-site field review-workshop of the preliminary draft with ORD and ORN representatives on 1 through 3 June 1982 have been incorporated into the plan.
4. Recommend the plan be approved.

FOR THE COMMANDER:

1 Incl
as (5 cys)

E. C. Moore
E. C. MOORE
Chief, Engineering Division
FM

LAKE BARKLEY MASTER PLAN

EXECUTIVE SUMMARY

Located in western Kentucky and Tennessee, and marking the western end of the scenic Cumberland River System, is Lake Barkley. Covering 57,900 acres at full pool and surrounded by 1,004 miles of shoreline, the lake area offers a number of major attractions to the public, including wildlife refuge areas, civil war monuments, and historic relics. In addition, there are camping areas, boat access ramps, commercial marinas, public parks, hiking trails, and swimming areas, to name only a few of the services and facilities available to the public at Lake Barkley.

Lake Barkley was authorized in 1946 for the purposes of navigation, flood control, and power production, and also serves as a source of water-related recreation. Land acquisition for Lake Barkley was accomplished under the conservative policies of the 1950's, resulting in extensive residential development along much of the adjacent shoreline areas. Generally, visitors to the area originate from within 300 to 500 miles of the project (a day's drive). Fort Campbell, a large army post, is located close to the project; therefore, military personnel contribute significantly to the use of the lake. Major cities within 200 miles are Nashville, Tennessee, 105 miles; Memphis, Tennessee, 175 miles; Louisville, Kentucky, 192 miles; St. Louis, Missouri, 165 miles; and Evansville, Indiana, 118 miles. Recreational use resulting from the strategic location of the project in proximity to these major cities has contributed substantially to the economy of the Lake Barkley area. In 1981, approximately 4,770,000 visitors came to Lake Barkley.

To the west and parallel to Lake Barkley for about 40 miles, separated by a stretch of land roughly 8 miles wide (called Land Between the Lakes), is Kentucky Lake, a large

TVA impoundment on the Tennessee River. A navigation canal connecting the two lakes allows joint operation of water level for all project purposes. Land Between the Lakes (LBL) is managed by the Tennessee Valley Authority (TVA) as an outdoor demonstration area for recreation, forestry, and wildlife management and for environmental education.

The original Master Plan for Lake Barkley was approved in December 1962. The recreational sites established under that plan are scattered, remote, and inefficient to manage and maintain. In many cases the existing facilities are no longer appropriate with regard to current and projected user expectations and patterns. For instance, there are too many picnic sites and not enough campsites to meet current public demand. In addition, the demand for recreational facilities at some sites has increased dramatically and now regularly exceeds site capacity, while other sites remain largely unused. The most important goal of this updated Master Plan is to consolidate the existing recreational sites and to relocate some facilities in order to provide optimum recreational opportunities and services in those areas with most intense visitation, while increasing the efficiency of operations and maintenance.

In order to accomplish this goal, major visitation and use patterns were analyzed to assess current and future trends. Using this data, it was possible to develop a plan to satisfy both the increasing demand for more recreational facilities and the need for more efficient and cost-effective management. Four recreation areas are scheduled to be closed permanently. Five recreation areas will be reduced to launching areas only, and other facilities at these areas will be closed or relocated. Two additional areas will be partially closed. This Master Plan update has been designed to permit future leasing of certain areas without modification of the text.

The general purpose of this updated Master Plan is to insure continuity in development, operation, and maintenance of Lake Barkley. More specific goals include the maintenance and enhancement of natural resources and the establishment of a uniform identity among all recreational sites. Both of these goals will be achieved, in part, by the success of an additional goal: a comprehensive program of interpretation. The area abounds with interpretive opportunities. Auto tours, self-guiding trails, increased campground interpretation, a new orientation brochure and map, visitors' centers, and ecological study areas are all recommended ways of developing the interpretive potential at Lake Barkley. Among the interpretive possibilities are the "Project Story"; water, wildlife, and forestry lore; the production of corn whiskey and tobacco; and the iron and steel industry which flourished in the project area for 80 years.

Another goal of this updated Master Plan is to promote recreational opportunities suitable to the varying characteristics of Lake Barkley. Three zones have been designated, each with recreational development planned suitable to its particular characteristics and current use. For example, Zone 1, reaching from Barkley Dam (Mile 30.6) south to Mile 68, has wide, deep water and a strong lake atmosphere suitable for intensive recreational development. Most of the proposed development is planned for this area.

Zone 2 stretches from Mile 68 south to Mile 102 and has narrower, primarily shallow water, often with exposed lake bottom. Zone 2 is suitable for resource-oriented recreational development. Cross Creeks National Wildlife Refuge is located here, as is the Barkley Waterfowl Management Area, operated by the Tennessee Wildlife Resources Agency; Bear Creek Waterfowl Management Area, operated by TVA; and Islands Wildlife Management Area and Levee Waterfowl Refuge Area, both operated by the Kentucky Department of Fish and Wildlife Resources.

Zone 3 reaches from Mile 102 south to Cheatham Lock and Dam (Mile 148.7). In this zone the lake is essentially limited to the original river channel and is suitable only for limited recreational development. Current development here consists mainly of boat access for fishers; little additional development is recommended.

The recommendations of this updated Master Plan will be implemented in 3 phases. Phase I will involve limited relocation of facilities; closures; reorganization of roads, parking, etc; and other minor improvements. Phase II will involve larger relocations and major improvements. Phases I and II will be implemented within the ongoing operation and maintenance program. Phase III will require cost-sharing partners and will involve major expansion of facilities and development of new sites. It is conceivable that, because Phase III actions may be initiated by cost-sharing partners, Phase III could be, to varying degrees, concurrent with Phase I and II.

The proposals and recommendations contained in this plan have been fully coordinated with all interested Federal, state, and local Governmental agencies as well as with interested individuals and groups. This level of coordination must continue for successful implementation of the plan. Once the recommendations of the Master Plan are implemented, visitors will be able to enjoy Lake Barkley to the fullest extent possible - the water, the wildlife, camping, sightseeing - from the mechanized wonders of the powerplant visitors' information center and the planned working model of a lock, to the natural wonders of a pair of bald eagles attempting to nest here. The goals outlined in the updated Lake Barkley Master Plan will insure that the area can accommodate the expected increased public use, can provide the services and facilities most in demand, and can be operated and maintained cost-efficiently.

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LAKE BARKLEY MASTER PLAN

CHAPTER 1 - INTRODUCTION

1.01 Project Authorization

The Barkley Dam & Lake Barkley project was authorized by the River & Harbor Act of 1946 (Public Law 525, 79th Congress, 2nd Session) for navigation, flood control, and hydroelectric power production. The River & Harbor Act of 1954 (Public law 280, 83rd Congress, 2nd Session) provided for the replacement of wildlife values lost as a result of the project. At the time of the authorization, the project was designated as the Lower Cumberland Project, but under provisions of a Joint Congressional Resolution approved in 1956 (Public Law 537, 84th Congress, 2nd Session) the name was changed to Barkley Dam and Lake Barkley.

Construction of the project was initiated in 1957. Completion was reached in 1966 when all project features became fully operational. Land acquisition was accomplished under the so-called "Eisenhower Policy" whereby only the very minimum amount of land needed for project construction was acquired in fee simple. Flowage easements were used whenever possible. A minimum amount of additional land was acquired to provide access to the lake for the general public. Under the relocations contract, all surrounding roadways were abandoned at elevation 359, not the project boundary. As a result, these road endings provide vehicular access to the shoreline and contribute significantly to recreational opportunities.

The more liberal Joint Interagency Land Acquisition Policy (300 foot policy) was adopted in the 1960s. By that time, acquisition for the Barkley project was nearly complete.

Through a supplement to the original Master Plan, additional lands were approved for acquisition. These additional lands were to accomodate the estimated need for commercial services on the lake.

1.02 Purposes and Scope of the Master Plan

The general purpose of this Master Plan is to assure a continuity of guidance in the development, operation, and maintenance of Lake Barkley. Engineering Regulation No. 1120-2-400 serves as the basis for the Master Plan. The Master Plan for Lake Barkley establishes optimal land and water-use plans based on public use and project resources analyses for all properties under Corps of Engineers jurisdiction. Proposals in the plan reflect the impact of Corps of Engineers policies as applied to Lake Barkley.

During the preparation of the Master Plan, consideration was given to surrounding land uses and probable trends. The plan provides specific guidelines for modifying existing sites in order to increase efficiency and economy of operation, enhance public use, and improve facilities. Plans for future development or major expansion of existing sites are presented in concept only and are designed to meet foreseeable future needs. During the planning process, coordination with agencies outside of the Corps of Engineers was of a general nature only; there was no attempt made to identify cost-sharing partners during this level of planning. More detailed coordination will be necessary in future years as local governments and various private and quasi-public interests come forward to participate in recreation developments on the lake.

1.03 Prior Design Memoranda

A Master Plan for Lake Barkley was originally approved in December 1962, subject to certain conditions. A Master Plan supplement, titled a Report on Commercial Boat Dock Development and Supplemental Land Acquisition, was approved August 1964.

Numerous amendments, supplements, policy changes, and project modifications have been made since completion of the original plan. All of these modifications have been incorporated into this Master Plan update.

1.04 Application of Public Laws

The following public Laws were applicable to Lake Barkley during the planning, designing, construction, and management of the project.

PUBLIC LAW 59-209 — The Antiquity Act of 1906 establishes the role of the federal government in the protection, preservation, and public availability of the historic, architectural, and archaeological resources of the nation. This act requires a permit to research historical and cultural resources on federal property and establishes penalties for destruction of antiquities on federal land.

PUBLIC LAW 74-292 — The Historic Sites Act of 1935 specifically establishes national policy to preserve prehistoric and historic sites of national significance. The National Park Service was directed to make the necessary investigations to obtain the "true and accurate. . . facts and information. . ."

PUBLIC LAW 86-523 — The Reservoir Salvage Act of 1960 and a subsequent amendment (Public Law 93-291) require salvage archeology in cases where there "is any alteration of the terrain caused as a result of any federal construction project or federally-licensed activity or program." This amendment further provides for the funding of archaeological work and allows up to 1% of the cost of the construction to be used for archaeological investigations.

PUBLIC LAW 78-534 — The Flood Control Act of 1944 (Section 4, as amended in 1946, 1954, and 1962) authorizes the Corps of Engineers to construct, maintain, and operate public parks and recreation facilities in the reservoir areas under their jurisdiction and to grant leases and licenses for project lands to other public agencies.

PUBLIC LAW 81-152 — The Federal Property and Administrative Services Act of 1949 authorizes the Secretary of the Army to dispose of certain properties under his jurisdiction. Special authority for disposing of land for public port and industrial facilities is further designated in Section 108 of the Act of Congress (Public Law 86-465; 74 Stat. 486.)

PUBLIC LAW 82-137 — The Independent Offices Appropriation Act of 1952 authorizes the Corps of Engineers to enter into water service contracts with various entities, i.e., cities, towns, water districts, etc. These agreements are to be self-sustaining in nature, and the federal government is authorized to prescribe and receive a fee to compensate for direct and indirect costs incurred by the government.

PUBLIC LAW 85-624 — The Fish and Wildlife Coordination Act of 1954, as amended in 1958, provides that fish and wildlife conservation shall receive equal consideration with other project purposes, and that such consideration shall be included in other aspects of water resources development programs.

PUBLIC LAW 86-717 — of 1960 provides for the protection of forest cover for reservoir areas under the jurisdiction of the Secretary of the Army and the Chief of Engineers. This act requires that, where practical, timber resource management should be carried out on Corps reservoir lands to increase the value of forest areas for conservation, recreation, and other beneficial uses.

PUBLIC LAW 89-72 — The Federal Water Project Recreation Act of 1965 requires that local cost-sharing sponsors (non-Federal public bodies) bear not less than 50 percent of the development costs and assume all responsibility for operation, maintenance, and replacement of the recreation facilities. This law administratively applies to all operating projects including Lake Barkley, according to the policy of the Office, Management and Budget. Consequently, additional recreation facilities cannot be constructed on Lake Barkley unless a cost-sharing agent participates.

PUBLIC LAW 89-665 — The National Historic Preservation Act of 1966 declares a national policy of historic preservation, directs the expansion of the National Register of Historic Places to include cultural resources of state and local as well as national significance, and establishes certain procedures to be followed by federal agencies in the event of a proposal that might have an effect on National Register properties.

PUBLIC LAW 91-190 — The National Environmental Policy Act of 1969 establishes that it is the policy of the federal government to preserve important historic, cultural, and natural aspects of our national heritage, and demands an interdisciplinary study of the impacts associated with federal programs.

PUBLIC LAW 93-205 — The Endangered Species Act of 1973 requires federal agencies to consider the impact of their actions on the endangered species listed on the Federal Register.

PUBLIC LAW 93-291 — The Archeological and Historical Data Conservation Act of 1974 provides for the preservation of significant scientific, prehistorical, historical, or archeological data that might be lost or destroyed as a result of various federal actions.

PUBLIC LAW 95-217 — The Clean Water Act of 1977 establishes a national goal of eliminating all pollutant discharges into U.S. waters by 1985. This act requires that federal agencies shall comply with all laws regarding control and abatement of water pollution, and that disposal sites for the discharge of dredged or fill material shall be specified through the Environmental Protection Agency.

LAKE BARKLEY MASTER PLAN

CHAPTER 2 - PROJECT DESCRIPTION

2.01 Location and Accessibility

Barkley Dam is located in Lyon and Trigg Counties, Kentucky, and on the Cumberland River 30.6 miles above its confluence with the Ohio River. Lake Barkley extends 118.1 miles upstream to Cheatham Lock and Dam near Ashland City, Tennessee. The lake lies in Livingston, Lyon, Caldwell, and Trigg Counties, Kentucky, and Stewart, Houston, Montgomery, Cheatham, and Dickson Counties, Tennessee. Paducah, Kentucky, is located twenty-seven miles west of Barkley Dam and is the closest city of significant size, having a population of approximately 30,000. Clarksville, Tennessee, with a population of approximately 47,000, is situated on Lake Barkley approximately sixty miles from Barkley Dam. Large cities within proximity to Barkley Dam are Nashville, Tennessee, 105 miles; Memphis, Tennessee, 175 miles; Louisville, Kentucky, 192 miles; St. Louis, Missouri, 165 miles; and Evansville, Indiana, 118 miles.

Access to the Lake Barkley area can be achieved by Pennyriple Parkway from the north/south, I-24 from the northwest/southwest, Western Kentucky Parkway from the east, U.S. Highway 51 and Purchase Parkway or U.S. Highway 79 from the southwest, and U.S. Alternate 41 from the southeast. Recently completed, Interstate 24 from Nashville and Chattanooga significantly expands the Lake Barkley market area to the southeast when coupled with I-65 from Huntsville and I-40 from Knoxville. The closest common air carrier service in the region is through the Paducah Airport. However, this service is limited in terms of daily frequency and the number of major markets served by direct flights.

2.02 Project Data

2.02.01 Climate

The climate of the Lake Barkley area is characterized by relatively mild winters, warm summers, and abundant rainfall. These weather patterns are generally the result of cool air masses moving southward from Canada and warm, moist air currents directed northward from the Gulf of Mexico. The average monthly precipitation for the region is 4 inches, as shown in Table 2.1. The rainfall is relatively well distributed throughout the year, with January the wettest month and October the driest. There is a wide range of temperature extremes in the Lake Barkley region, as shown in Table 2.2. The prevailing winds are from the south-southwest. The wind speeds of the area are relatively brisk, with 26% being 10 miles per hour or more, as shown in Figure 2.1.

Table 2.1

Average Monthly Precipitation

<u>Month</u>	<u>Inches</u>	<u>Month</u>	<u>Inches</u>
Jan.....	5.3	July.....	4.6
Feb.....	3.5	Aug.....	3.4
Mar.....	5.1	Sept.....	3.4
Apr.....	4.2	Oct.....	2.5
May.....	4.3	Nov.....	4.1
June.....	4.4	Dec.....	4.0

Source: Kentucky Lake Vacationland Promotion Brochure

Table 2.2

Temperature Ranges in the Lake Barkley Vicinity

<u>Location</u>	<u>Mean Temperature*</u>	<u>Extreme Temperatures*</u>
	<u>January/July</u>	<u>Low/High</u>
Paducah, Kentucky	30.9/79.3	3.0/99.2
Fort Campbell, Kentucky	30.7/78.1	3.0/98.4
Clarksville, Tennessee	32.0/78.0	1.8/98.2
Nashville, Tennessee	35.5/79.1	5.8/96.6
Gilbertsville, Kentucky	33.4/82.1	2.8/100.6

*Degrees in Fahrenheit

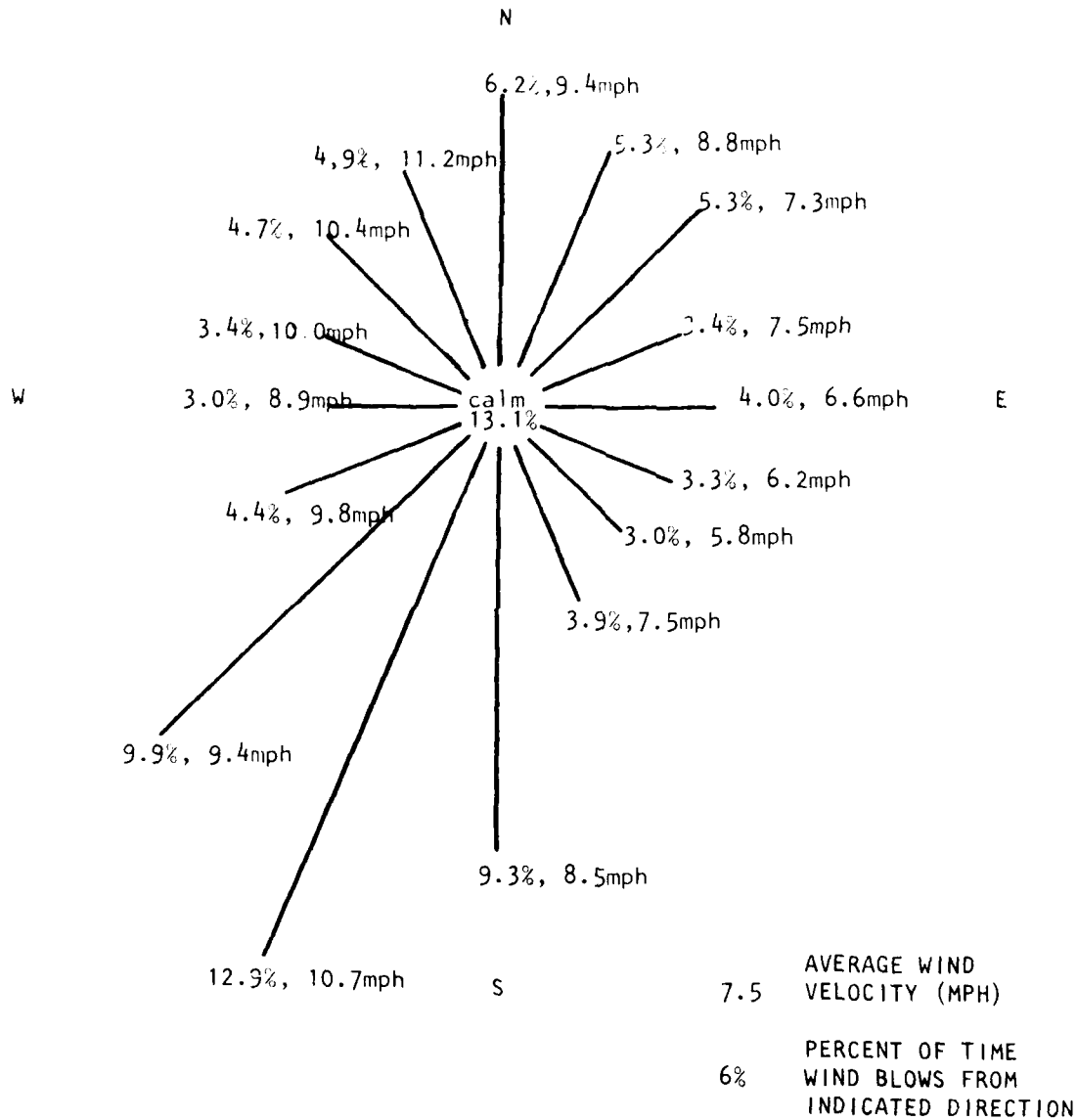
Source: U.S. Department of Commerce, National Weather Service

2.02.02 Hydrology

Initially, the level of Lake Barkley is controlled by Barkley Dam, the last dam found on the Cumberland River before it flows into the Ohio River. Kentucky Lake, a TVA Lake of the Tennessee River system, is located to the west of Lake Barkley. These two lakes lie roughly parallel to each other for approximately fifty miles and are separated by a land mass roughly eight miles wide known as the Land Between the Lakes. A canal was constructed between the two lakes as part of the original Lake Barkley Project, and the fluctuation of the water levels on both lakes is now controlled jointly by both Kentucky and Barkley Dams.

FIGURE 2.1

Average Wind Velocities and Directions, Lake Barkley, KY_TN



STATION: #03816, PADUCAH, KY
PERIOD: 1/60 - 12/64

SOURCE: U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ENVIRONMENTAL DATA SERVICE

There are 17,598 square miles of drainage area in the Cumberland River Basin above Barkley Dam. There are four mainstream impoundments above Barkley, namely Cheatham Lake, Old Hickory Lake, Cordell Hull Lake, and Lake Cumberland. In addition, four major tributaries are also impounded for purposes of flood control, hydroelectric power production, and/or recreation.

2.02.03 Description of the Lake and Project Structures

(1) Lake Barkley

Lake Barkley reaches 118 miles from Barkley Lock and Dam at River Mile 30.6 to Cheatham Lock and Dam 148.7 miles from above the mouth of the Cumberland River. At the normal full pool level, elevation 359, the lake has a surface area of 57,900 acres and a shoreline of approximately 1,004 miles. At the maximum regulated level, elevation 375 (top of spillway gates), the reservoir has an area of 93,400 acres and provides a storage capacity of over 2,000,000 acre-feet, thus making Lake Barkley the largest lake in the Cumberland River System.

(2) Barkley Lock, Dam, and Power Plant

Barkley Dam is a combination of rolled earth and a concrete gravity structure with a maximum height of 157 feet. It has an overall length of 10,180 feet, which includes 430 feet of power intake section, 221 feet of lock section, 804 feet of spillway section, and 8,725 feet of earth embankment. The spillway consists of twelve tainter gates, fifty feet high and fifty-five feet wide, providing a maximum discharge capacity of 570,000 cubic feet per second at full pool (elevation 375) level (See table 2.3.).

In 1979 Barkley Lock recorded 1,896 lockages. Of these, 499 (26%) were recreational lockages and 1,397 (74%) were commercial or other lockages.

The power plant extends from the east end of the spillway to the earth embankment and consists of four unit bays and a service bay, each of which is eighty-six feet wide. Each of the four generators has a capacity of 32,500 kilowatts, for a total capacity of 130,000 kilowatts. The average annual power production for the Lake Barkley Power Plant is 582 million Kilowatts.

(3) Canal

The Barkley Canal is a 1.75 mile excavated channel, with a 400-foot bottom width which cuts through a narrow ridge between Lake Barkley and Kentucky Lake. The canal is located 2.12 miles above Barkley Dam and 2.9 miles above Kentucky Dam. The canal provides a navigable channel for commercial and recreational river traffic and permits the diversion of flows needed to improve hydroelectric power production. An estimated 100 million extra kilowatts of energy are produced as a result of diversion of water through the canal.

Table 2.3
Statistical Project Data
RESERVOIR

Operating levels at dam:

Maximum regulated, top flood control pool (area 93,400 acres) el 375

Normal operation:

Full pool (area 57,900 acres) el 359

Minimum pool (area 45,200 acres) el 354

Minimum pool in advance of floods el 346

Backwater (length to Cheatham Dam) 118.1 miles

Storage (flat pool assumption):

Total volume at el 375 2,081,900 ac. ft

Controlled flood storage (el 375-354) 1,471,800 ac. ft

Power drawdown, guide curve operation summer-

winter seasons (el 359-354) 258,800 ac. ft

NAVIGATION FACILITIES

Lock:

Lock Chamber:

Clear Dimensions 110 x 800 ft

Lift:

Maximum (el 302 to el 375) 73 ft

Normal (el 302 to el 359) 57 ft

Minimum depth over guard sills Upper, 11 ft; lower 13 ft

Type of lock gates Horizontally framed, miter

Operating Machinery Hydraulically operated

Floating mooring bitts, number 10

Table 2.3

(continued)

DAM

Canal

Length..... 1.75 miles
Bottom width, el 335 400 ft
Depth at minimum pool level, el 346 11 ft

TypeConcrete-gravity and earth fill

Lengths:

Lock section..... 221 ft
Spillway section..... 804 ft
Power plant section (intake and service bay) 430 ft

Earth embankments:

Right bank 7,116 ft
Left bank 1,609 ft

Total structures..... 10,180 ft

Maximum height (foundation to deck level) 155 ft

Spillway:

Net length, clear opening..... 660 ft
Width of piers 10 ft
Crest gates..... 12-tainter; 55 ft. wide, 50 ft. high
Crest level el 325
Top of spillway gates (closed position)..... el 375
Bottom of spillway gates (fully raised) el 378

Table 2.3
(continued)
POWER PLANT

Power:

Generators:

Number	4
Unit capacity, normal rating	32,500 kw
Total rated installation (full plant).....	130,000 kw

Hydraulic turbines:

Number and type	4-Kaplan
Rated unit capacity at 44-ft. design head	58,000 hp
Total rated installation	232,000 hp

Full plant water use:

Normal	40,000 cfs
Maximum	52,000 cfs

Effective dependable capacity added to Cumberland

River system of plants	130,000 kw
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Energy:

Estimated net total, average annual	582,200,000 kwh
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(4) Adaptability of Project Structures for Recreational Use. Generally the only recreation use of project structures is for interpretative purposes. The canal provides access for recreation craft between Lake Barkley and Kentucky Lake, and there is a view of the canal from an overlook on the north bank. There is no additional opportunity for recreational use of project structures.

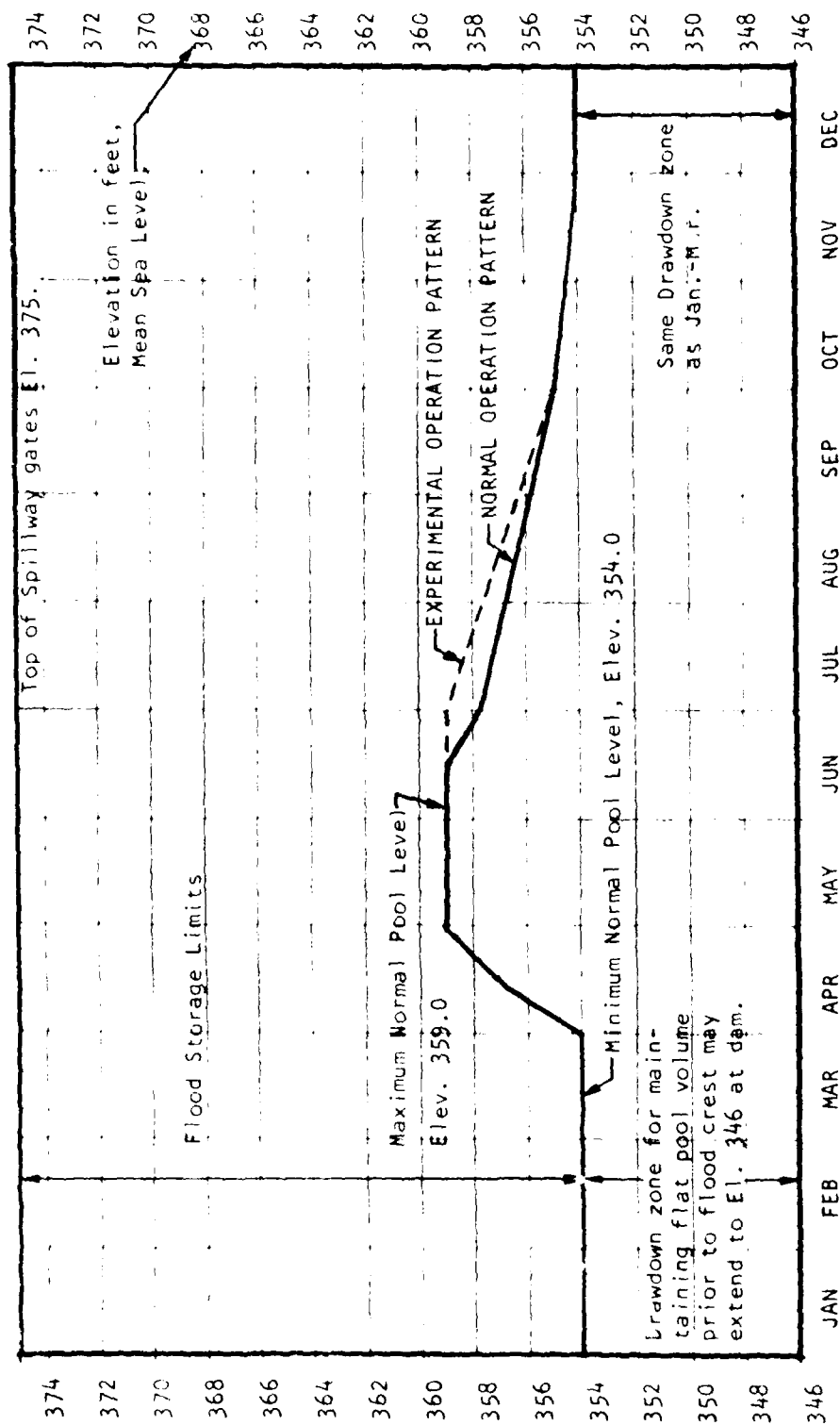
(5) Reservoir Operation - Operation of Lake Barkley fulfills four major purposes:

1. flood control,
2. power production,
3. navigation, and
4. recreation.

Subject to the constraints of the operating requirements necessary to meet the primary purposes listed above, the stream flow and reservoir level can be modified for such purposes as mosquito control, bank erosion prevention, and pollution abatement.

Lake Barkley and Kentucky Lake are connected by an open canal. The two projects are operated at essentially the same levels in order to hold velocities through the canal within desirable limits. The average rule curve for reservoir operation is shown on Figure 2.2. As indicated thereon, normal elevation 354 will be maintained from 1 December through 31 March. Starting on 1 April the reservoir will be gradually raised to elevation 357 on 15 April and to elevation 359 by 30 April. Normal pool will be maintained at 359 until about 15 June and thereafter it will be lowered to about 358 by 30 June, 355 by 30 September, and down to 354 by 30 November. In the winter period from 1 December to 31 March, additional drawdown of the water level to as low as 346 is permitted in order to maintain flat pool volume while passing large flows when storage is not necessary for downstream control. The maximum elevation for flood control purposes is at elevation 375. These water level elevations are measured at the dam; higher levels will occur upstream in the reservoir depending on the location and the volume of flows.

FIGURE 2.2
Reservoir Operating Levels, Lake Barkely, KY-TN



Note: Elevations apply only at dam.

Pool may be raised as high as elev. 359 after 1, Oct. for power storage, provided it is drawn to elev. 354 by 1, Dec.

Source: U. S. Army Corps of Engineers, Nashville District.

Regulation for Flood Control - The primary purposes of flood control at Lake Barkley are to:

1. safeguard the Mississippi levee system,
2. reduce the frequency of use of the Birds Point-New Madrid floodway, and
3. reduce the frequency and magnitude of the flooding of lands along the lower Ohio and Mississippi Rivers which are unprotected by levees.

The established seasonal operating pattern for Lake Barkley provides for holding the headwater at elevation 354 during the flood season, filling it to elevation 359 in the spring, and then gradually lowering it back to 354 during the summer and fall.

During non-flood periods, Lake Barkley and Kentucky Lake are regulated so as to maintain the headwater levels with such differences between the reservoir levels as may be needed to divert flows through the canal to minimize spilling and improve system generation efficiency.

The differential between the headwater at Lake Barkley and Kentucky Lake is limited to about one foot. During the crop season (generally from May 2 to November 30) the diversion from Kentucky Lake to Lake Barkley is limited to flows which do not add to Lake Barkley tailwater elevations in excess of 325.

During the flood season, the flat-pool storage capacity between elevation 354 and the top of the pool at elevation 359 amounts to 742,000 day-second-feet in Lake Barkley and 1,027,000 day-second-feet in Kentucky Lake. The flat-pool capacity between the summer pool level at elevation 359 is 611,000 day-second-feet in Lake Barkley and 1,479,000 day-second-feet in Kentucky Lake.

Reservoir Regulation for Power - Due to the interconnecting canal, operations at Barkley Power Plant are closely coordinated with those at TVA's Kentucky Lake. The generating equipment at Barkley Power Plant is operated to meet the fluctuating demands of the TVA system and at times flows are diverted from one lake to the other to improve the power production from the integrated system.

Reservoir Regulation for Navigation - At times, limitations may be placed on power operations in order to assure adequate depths for navigation and to restrict flow velocities to less than five miles per hour.

Reservoir Regulation for Recreation - Future recreation activities may suggest that limitations be placed on power operations. If this occurs, such restrictions must be satisfactory to both the Corps of Engineers and the Tennessee Valley Authority.

In 1980 the Corps and the Tennessee Valley Authority (TVA) agreed to implement and evaluate an experimental guide curve for managing the elevations of Kentucky and Barkley Lakes. The purposes for studying this new guide curve are to enhance recreation potential and to improve the fishery and shoreline aesthetics. Under the new curve, the lakes remain at summer pool 359 for an additional two weeks and begin a gradual drop to winter pool beginning on about 1 July. This provides an additional two weeks of stable water during the peak recreation season. Each year the effects of the new water levels are evaluated for their total impact. After three to four years of data are accumulated, the Corps and TVA, working in cooperation with the U.S. Fish and Wildlife Service and the states, will determine whether or not to adopt the new guide curve permanently.

(6) Kentucky Lake

Kentucky Lake is formed by Kentucky Dam located in Livingston and Marshal Counties, Kentucky, at River Mile 22.4 of the Tennessee River. Construction of the Kentucky Lake Project began in 1938 and was essentially complete in 1944. Kentucky Lake extends 184.5 miles from Kentucky Dam to Pickwick Landing Dam. At normal summer pool level, elevation 359, the lake has a surface area of 158,300 acres and a shoreline of 2,380 miles. Since the construction of the Barkley Canal in 1966, Kentucky and Barkley Lakes have been operated as a unit. The lock at Kentucky Lake is operated by the Corps of Engineers.



View of bluffs along the Cumberland River Channel;
Lake Barkley, Lake Development Zone 3

LAKE BARKLEY MASTER PLAN

CHAPTER 3 - STATUS OF PROJECT

3.01 General Project Development

3.01.01 Construction

Construction of the Lake Barkley Project was initiated on June 7, 1957. The Lock was opened to navigation on July 8, 1964, and the project was fully effective for flood control on February 14, 1966. Power units were placed in operation on January 21, February 4, March 7, and March 30, 1966. Lands acquired for the project total 108,963 acres (69,627 in fee simple, 24,278 in easement, 7,958 use permit acres, and 7,100 riverbed acres).

3.01.02 Expenditures

The cost of project recreation facilities through fiscal year 1980 amounted to \$4,965,800, of which \$4,042,000 was spent in initial project construction, and the remaining \$923,800 was obtained through the Code 710 program. Initial construction funds were used for all of the basic site preparation costs and for construction of roads, parking, picnic and camping sites, and limited sanitary facilities. General construction funds were depleted before completion of all of the sanitary facilities. Most of the existing sanitary facilities provided over the past 15 years were funded through the Code 710 program. The remaining sanitary improvements necessary to meet minimum federal and local standards are to be accomplished as funds are available.

3.01.03 Operation and Maintenance Funds

Approximately \$4,613,000 was allocated for the operation and maintenance of all project features in fiscal year 1981. Of this total, \$1,365,000 was spent on items related to resource management. In recent years emphasis has been placed on the use of operation and maintenance funds to upgrade and rehabilitate existing recreation areas operated by the Corps of Engineers. Current operation and maintenance budget policy provides for use of these funds to reinforce or relocate existing facilities that are difficult or costly to maintain. The purpose of expending funds for these enhancements is to ensure reduction of costs of long-term maintenance and to operate recreation areas at an optimum level. Actions taken at Lake Barkley under this program include consolidation of certain activities and closing parts or all of certain recreation areas where the level of use does not justify continued operation. The resource manager cooperates with local organizations on volunteer projects such as trail construction and similar types of improvements on project lands. All such future activities will be consistent with the plans and resource use objectives contained in this Master Plan.

3.01.04 Special Appropriations

There have been no special appropriations or similar funding of any recreation development at Lake Barkley.

3.01.05 Non-Federal Expenditures

(1) Commonwealth of Kentucky - The Kentucky Department of Parks has developed the Lake Barkley State Resort Park on land adjoining Lake Barkley. The park is situated on both project lands (1700 acres) and lands that have been acquired by the state (1900

acres). The Commonwealth of Kentucky has invested approximately \$3,600,000 in this park since the mid-1960s. In fiscal year 1980, over \$200,000 was invested in a shoreline improvement project under a recreation cost-sharing contract. This expenditure represented \$100,000 in federal funds and \$100,000 in state funds.

(2) Local - Two sites on the project (Trice Landing Park and McGregor Park) are operated and maintained by the City of Clarksville. At both of these sites, most of the existing improvements were provided by the Corps of Engineers before they were leased to the city. At McGregor Park, a modern restroom was added by the city through a grant from the Land & Water Conservation Fund.

The former Lick Creek Public Use Area, (now Dover Recreation Park) comprising approximately 52 acres, is being operated by the City of Dover under a lease arrangement.

Private investment has occurred at six designated commercial dock sites along the lake representing a total investment of \$2,705,000.00.

All of these developments are situated on project lands and waters. In addition to developments on public lands, there are numerous lake-oriented improvements such as camps of various types, seasonal and year-round dwellings, and other support businesses such as grocery stores, bait shops, and amusement centers.

3.02 Public Use Areas Development

Of the 74 sites proposed for public use in the original Lake Barkley Master Plan, 50 were initially developed by the Corps or others. Four of those operated by the Corps are to be

permanently closed. Subsequent to approval of the initial master plan, 22 additional sites have been designated and developed by others, resulting in a total of 69 existing sites on the lake. One of the 69 sites, Canal Overlook, was originally part of another site. These existing sites fall into the following categories:

- 5 commercial and non-federal recreation areas located on easement land,
- 3 wildlife management areas,
- 19 federally administered sites (other than COE),
- 29 recreation areas, parks and commercial concessions on Corps fee lands,
- 13 secondary access sites and launching areas.

We believe the above represent a balanced, well distributed level of access commensurate with the size and conditions that exist on Lake Barkley. It should be noted 16 of the other federally administered sites are in TVA's Land Between The Lakes. For discussion of these sites in detail, see Chapter 7.

3.03 Coordination With Other Agencies

3.03.01 General

At the inception of work on this Master Plan update, interagency coordination was initiated by sending a letter, dated October 7, 1980, to fifty-three federal, state, and local agencies and private entities. The letter outlined the objectives of the Master Plan update and invited participation in the planning process through comments or submission of pertinent information. Fourteen responses (26.4%) were received.

Of the responses received, the following points summarize:

The Kentucky State Conservationist expressed an interest in Lake Barkley serving as a source of water to agricultural irrigation systems.

The Director of Tennessee's Division of Water Quality Control stated that regarding the portion of Lake Barkley within Tennessee, the water quality conditions are favorable for recreational use.

Both Kentucky's and Tennessee's departments responsible for historical and archaeoclogical resources are interested in any sites which may be of importance to their concern.

3.03.02 Detailed

When warranted, additional coordination meetings were conducted to review the current Master Plan, programs, and policies. Emphasis was placed on contacting potential cost-sharing sponsors such as the States of Kentucky and Tennessee and the City of Clarksville. Contact was also maintained with the private sector throughout preparation of this Master Plan primarily through Kentucky's Western Waterlands, an organization of tourist-oriented interests in the Lake Barkley area. Coordination will be continued as proposals in this Master Plan are implemented.

LAKE BARKLEY MASTER PLAN

CHAPTER 4 - NATURAL AND CULTURAL RESOURCES OF THE PROJECT AREA

4.01 General

The physiography, geology, soils, and climate of Lake Barkley are generally uniform along the reservoir. The interaction of these elements directly influences the flora, fauna, water quality, and land use of the area.

Before impoundment, this region of the Cumberland River was characterized by broad floodplains and wetlands, a diverse aquatic and terrestrial biota, and typical warm water fishery. Agriculture was a major land use in the bottomlands, where soils were moderately fertile — corn, tobacco, wheat, and soybeans were grown. Where soils were poorly drained or topography was steeply rolling, the land was timbered or pastured.

Impoundment primarily most altered the downstream one-third of the present Lake Barkley. That section of the reservoir is broadest and deepest and most suitable for developed recreation. Much of the property immediately surrounding the project land is being developed into subdivisions and resort-type complexes. Impacts to the natural resources include undercutting of the bank, encroachment from subdivisions, and the effects of camping activities.

In the middle portion of Lake Barkley, Cumberland River mile 75 to 100, the reservoir changes character. Here, the areas outside the main channel are quite shallow and characterized by mudflats, embayments, and contiguous wetlands. This overall shallow depth outside the channel makes Lake Barkley unique among the Cumberland River

impoundments. Considerable acreage in this portion of the reservoir has been set aside for the development of various wildlife management areas and waterfowl refuges as mitigation for the inundation of Kentucky Woodlands National Wildlife Refuge.

The upper portion of Lake Barkley, Cumberland River mile 100 to 150, retains most of its original riverine character. The waters are within the confines of the original stream-banks. In this section there have been very few recent changes in land-use since impoundment.

4.02 Geology and Soils

Barkley Dam and the lower reaches of Lake Barkley lie in the transition zone between the Jackson Purchase and Mississippian Plateau provinces of Kentucky. The Jackson Purchase is part of the larger Mississippi Embayment which comprises about 100,000 square miles in the Gulf Coastal Plain. Structural features modify the delta-shaped embayment somewhat, but it is essentially a downwarped trough (plunging syncline) of Paleozoic rocks in which sediments ranging in age from Jurassic to Holocene have been deposited. Most of the embayment has been above sea level since the end of the Eocene Epoch, and, as a result, erosion has removed much of the sediments that once overlaid the Paleozoic rocks in the areas of the dam site and the extreme lower reaches of Lake Barkley. The sediments that remain cap the hills and ridges in the area and consist of Cretaceous, Tertiary, and Pleistocene deposits, all of which are predominantly sands or gravels. Underlying the sediments in the transition zone are the Warsaw and St. Louis limestones that extend over from the adjacent Mississippian Plateau. These limestones are exposed in the major streams and rivers and in the lower portions of the valley slopes.

The middle portions of Lake Barkley are situated in the Mississippian Plateau. The plateau is a region of Mississippian rock outcrops that form a broad crescent-shaped belt east of the Jackson Purchase. In the project area, these nearly flat-lying rocks are mainly limestones of the Fort Payne, Warsaw, and St. Louis formations.

The upper reaches of Lake Barkley are situated within the Western Highland Rim of Tennessee. Basically, the Western Highland Rim is the western flank of the structural Nashville Dome. The flanks of the dome remain, but the center portion has been breached and completely eroded away in the geologic past, forming a topographic depression called the Nashville or Central Basin. Exposed in the project area in the Highland Rim are the nearly flat-lying Fort Payne, Warsaw, and St. Louis formations.

An unusual cryptoexplosive structure known as the Wells Creek structure is located near Cumberland City. The circular basin has a diameter of eight miles and is characterized by extensive faulting, folding, and brecciation. The structure is composed of Ordovician limestone which has been uplifted 1,000 feet above its normal position. It is believed to have originated from either meteor or comet impact or from volcanic explosion.

The overburden soils for the entire project consist of mainly the Mississippi Embayment sediments, alluvium, and residual soils. The sediments relating to the embayment have already been discussed. Alluvium occupies the valley bottoms of all major streams and rivers. The alluvium is composed of silts, sands, and clays. Residual soils generally blanket all the hills, ridges, and uplands in the areas of the Mississippian Plateau and the Western Highland Rim. These soils are derived from the weathering of the underlying rocks and are predominantly clays.

4.03 Terrestrial Resources

The Cumberland River Valley was never glaciated, so the fauna and flora have been evolving since the origin of the valley. This uninterrupted expanse of time has allowed establishment of a diverse biota. Other factors that have influenced the biota are climate (warm summers, moderate winters), evenly distributed precipitation, soils which have developed on old land forms with the exception of the stream alluvium, and topography which is variable, with narrow valleys carved into the sandstones and broad floodplains along the river.

Braun (1950) includes the project area in the Western Mesophytic Forest Region, although perhaps it is a transitional zone between the Mixed Mesophytic Region on the east and the Oak-Hickory Region to the west. Much of the virgin oak-hickory forest was cut to provide coke for iron furnaces. Today, 60% of project land, or 15,000 acres, is dominated once again by oak-hickory forest. Vegetation varies from second growth timber on upland slopes to successional species on old fields.

Species associated with dry, upland sites are scrub oaks, hickories, and ashes. The American beech-sugar maple association occurs in moist coves and hollows. Species commonly found along the shoreline and in bottomlands are riverbirch, cottonwood, and sycamore. Willow and bald cypress occur on the exposed mud flats.

Significant amounts of former farmland are reverting to woodland. Species common to early successional stages are lespedeza, fescue, broomsedge, and Johnson grass. Blackberry, wildrose, and honeysuckle dominate later successional stages. A complete list of woody and herbaceous plants is available in the sources listed at the end of this chapter.

The woodlands, fields, and wetlands of the project amply supply food, water, and habitat for the sustenance of both local and migratory bird species, reptiles, amphibians, and numerous game and non-game mammal species. Kentucky does some non-game management through the sowing of a mixture of such crops as millet and sunflower in powerline cuts to improve the habitat for songbirds. Tennessee distributes a mixture of buckwheat, milo, millet, lespedeza, and cowpeas for improving general wildlife habitat. TWRA also maintains mixed cover areas with fencerows and multiflora rose growths occurring next to fields and woodlands where feasible in the management area.

The policy of maintaining a strip of natural vegetation along the reservoir is valuable to small, non-game species. Additionally, land in and around public use areas, land designated for project operation, and land designated for wildlife management is managed to maintain growths of seed-bearing weeds such as beggarweed, smartweed, and ragweed through intermittent mowing routine. The Corps also plants trees and food plots (using a mixture of such small grain crops as millet, milo, buckwheat, lespedeza, cowpeas, and grain sorghum) near existing cover for nongame species.

As replacement for the loss of wildlife habitat, the Corps of Engineers transferred 8,777 fee acres to the US Fish and Wildlife Service for development of the Cross Creeks National Wildlife Refuge along the mid-portion of the lake (zone 2), reserving flowage easement rights over 4,299 acres. In addition, TVA has been granted the use of 689 acres for a demonstration area known as Bear Creek Waterfowl Management Area. A total of over 4,000 acres is leased to the States of Kentucky and Tennessee as well for the development of additional refuges and wildlife management areas along the mid-section (zone 2) of Lake Barkley. An active sharecrop program is conducted on approximately 1,000 acres of the total area involved. The combined effort of these governmental agencies has successfully preserved and enhanced wildlife and fishery habitat in and

along the shores of Lake Barkley. For example, at the Cross Creeks National Wildlife Refuge, the impounded waters, marsh, farmland, and upland there serve to supply excellent habitat for more than 200 species of birds and a variety of mammals and reptiles. Winter-time peak waterfowl visitations there have included as many as 15,000 Canada Geese and some 65,000 ducks of as many as 15 different species. In the past there has also been a wintering population of bald eagles on the refuge numbering from three to five individuals.

A complete list of species known to inhabit the area is available in the Cumberland River Final Environmental Impact Statement (FEIS) and in the Lake Barkley Forest, Fish, and Wildlife Management Plan. About 204 species of birds have been reported in the area. Many species are migratory waterfowl which are attracted by the food plots. Amphibians and reptiles are common to all habitats; however, springs, temporary ponds, open and wooded areas, and rock outcroppings are of particular interest to the nature study enthusiast.

4.04 Aquatic Resources

The Kentucky Department of Fish and Wildlife Resources and the Tennessee Wildlife Resources Agency are responsible for fish management on Lake Barkley. In general, the fishing has been good for both the sport and commercial fishermen. Primary game fish species caught in this reservoir are crappie, black bass (largemouth and Kentucky bass), white bass, panfish (bluegill and other sunfish), and catfish (channel and blue catfish). Primary commercial fish species taken are buffalo, catfish, paddle fish, and carp.

In 1978, the largest fish population study ever undertaken was conducted on the Lake Barkley Crooked Creek Embayment in Kentucky. A total of 400 people from 14 state

agencies, 3 federal agencies, 2 private agencies, and 15 universities participated in the field sampling for this study. The primary objectives were to provide an evaluation of various reservoir fish management techniques and to determine the effectiveness of fish attractors in the Crooked Creek Embayment. Brush piles placed in areas where natural vegetative cover was lacking were effective in concentrating fish populations. It was found that the best attractors consist of hardwood brush. By serving as a substrate for algae, brush piles attract minnows and the immature fish, which come to feed upon the algae, the crustaceans, and immature insects which congregate in the algae. This, in turn, attracts the larger fish. The fish attractors were especially effective in concentrating four popular game fish species: channel catfish, bluegill, largemouth bass, and white crappie. Each acre of brush was found to hold an average of 5,122 game fish of these species, having a total weight of 1,354 pounds, as compared to an average of 660 fish weighing 103 pounds in open water areas away from the attractor sites.

During recent years the Corps has experimented with reservoir operations to enhance fisheries. Standard procedures call for an elevation increase in April from the winter pool level to the normal summer pool elevation of 359 feet msl. The elevation increase provides favorable conditions for the spawning of most of the resident game fish species. Once the summer pool elevation is reached it is generally held until mid- or late June. At that time a gradual decline in the pool elevation begins and continues all through the summer and fall months until the winter pool elevation of 354 feet msl is reached in December.

The experiment has had mixed results. On one side, fish spawning and fry survival are enhanced and boating and shoreline recreation, swimming, bank fishing, etc., are favored by an extended summer pool and gradual drawdown. However, waterfowl managers find their agricultural activities impacted since the dewatered areas do not dry out in time to

be planted for the annual small grain crop which helps to sustain wintering ducks and geese. Current plans call for continued studies concerning optimum water level management techniques.

There is a commercial mussel harvesting industry in operation on Lake Barkley, both in Kentucky and in Tennessee. However, since impoundment of the reservoir in 1966, harvest figures have declined, primarily due to the poor quality of the mussel shells which are being recovered. Historical information indicates that during the past century, the Cumberland River, along with the Tennessee River, was the leading resource area for fresh water mussel fauna in the United States. In the early 1900's, the lower middle section of the Cumberland River (from Nashville to Dover) supported the largest and most commercially valuable mussel beds in the entire river. A button-blank factory was established at Clarksville to provide a convenient market for the shells harvested in this stretch of the river. The lower Cumberland River (from Dover, TN to Smithland, KY) also supported a rich mussel fauna, but commercial exploitation of this section was not as great as in the Nashville to Dover section. A reliable listing of mussel species is not available; however, a complete list of references can be found in the Cumberland River FEIS.

4.05 Unique Environmental Features

Records, maintained by Tennessee, Kentucky, and TVA Heritage Programs, of species listed as threatened or endangered were reviewed to determine if there are any areas that need special protection. The search indicates that while the flora and fauna are rich and varied, there are no outstanding natural areas. A list of protected species that occur within a two mile radius of the project's boundaries is presented in Table 4.1. The activi-

ties on Lake Barkley will be screened and modified if necessary to avoid negative impacts on rare species.

The left-descending bank of Lake Barkley is managed by TVA as part of the Land Between The Lakes (LBL) to elevation 378 feet. Here, in 1974, a pair of bald eagles was observed building a nest beside the south fork of Jake Fork Bay. Although to date these eagles have been unsuccessful in their nesting attempts, they have returned and added more material to the nest as recently as 1981. Consideration is being given to restricting fishing in this bay during each nesting season in order to avoid disturbing these birds. In another non-game management program, the Tennessee Wildlife Resources Agency (TWRA), the Tennessee Conservation League, and the Tennessee Valley Authority are currently engaged in a cooperative bald eagle "hacking" project in the upper reaches of Lake Barkley's Prior Bay, just inside the Tennessee state line. In such projects, very young eagles that are in captivity for various reasons are introduced back into the natural environment in a carefully controlled program. Since bald eagles (especially the females) will generally return to their fledgling home to nest once they attain sexual maturity, this program is designed to re-introduce eagles into the area so they will return and reproduce along the Lake Barkley.

A black-crowned night heron rookery has recently been discovered on several small islands just upstream from the Levee Waterfowl Refuge Area (approximate Cumberland River Mile 71). These birds are currently listed as "threatened" by Tennessee, and "of special concern" by Kentucky.

Table 4.1.

RARE SPECIES COLLECTED IN THE VICINITY OF BARKLEY RESERVOIR

	COLLECTION DATE	FED	TN	THP	KY
<u>PLANTS</u>					
Synandra hispidula (Synandra)	1974	C		T	T
Hydrastis canadensis (Golden Seal)	1979			T	S
Phacelia ranunculacea (Phalecia)	1974			T	U
Spiranthes ovalis (Oval ladies'tresses)	1976			S	
Solidago rupestris (Rock goldenrod)	1947			E	E
Carex gravida (Sedge)	1942			S	
Heteranthera limosa (Mud-plantain)	1949			E	E
Carex muskingumensis (Sedge)	1947,1951			S	
Arabis shortii var. phalacrocarpa (Rock-cress)			E		
Lobelia appendiculata var. gattingeri (Gattinger's labelia)	1948	C		T	
Lesquerella globosa (Lesquereux's mustard)	1946,1968	C		T	T
Carex comosa (Sedge)	1970			S	
Apios priceana (Price's potato-bean)	1969	C	E	E	E
<u>INVERTEBRATES</u>					
Epioblasma florentina florentina (Yellow-blossom pearly mussel)		E	E	E	E
Io salebrosa (Rugged river snail)		C		E	T
Io armigera armigera (Armigerous river snail)		C			
Orconectes tricuspis (Crayfish)					S
<u>AMPHIBIANS</u>					
Cryptobranchus a. alleganiensis (Hellbender)	1964		D	S	T
Ambystoma talpoideum (Mole Salamander)	1972		D	S	S
<u>REPTILES</u>					
Natrix erythrogaster neglecta (N. copperbelly-water snake)	1974			S	
Cnemidophorus s. sexlineatus (Six-lined racerunner)	1966,1976		D	S	
Pituophis m. melanoleucus (N. pine snake)	1967		T	T	U
Siren intermedia (Lesser siren)	1966				U

Table 4.1

(continued)

	COLLECTION DATE	FED	STATUS*			KY
<u>FISH</u>						
Cycleptus elongatus (Blue sucker)	1964,1976		T	E		T
Anguilla rostrata (Americian eel)	1977		D	S		
Ammocrypta pellucida (Eastern sand darter)	1890					T
Notropis shumardi (Silverband shiner)						U
Percina phoxocephala (Slenderhead darter)						S
Acipenser fulvescens (Lake sturgeon)						T
Percina shumardi (River darter)						T
Clinostomus funduloides (Rosyside dace)						S
Ictiobus niger (Black buffalo)						U
<u>BIRDS</u>						
Melanerpes erythrocephalus (Red-headed woodpecker)	1973,1981		D	S		
Ardea herodias (Great blue heron)	1973		D	T		U
Circus cyaneus hudsonius (Marsh hawk)			T	S		U
Aquila chrysaetos (Golden eagle)	1974		E	T		S
Haliaeetus leucocephalus (Bald eagle)	1974	E	E	E		E
Poocetes graminus (Vesper sparrow)	1974		D	S		T
Pandion haliaetus (Osprey)	1974		E	T		S
Limnothylpis swainsonii (Swanson's warbler)	1940,1942		D	S		
Buteo lineatus (Red-shouldered hawk)			D	S		U
Tyto alba (Barn owl)	1972		D	E		U
<u>MAMMALS</u>						
Myotis sodalis (Indiana bat)	1964	E	E	E		E
Myotis grescens (Gray bat)	1965	E	E	E		E
Sorex longirostris (Southeastern shrew)	1979		D	S		T
Zapus hudsonius (Meadow jumping mouse)	1979		D	S		U
Sylvilagus aquaticus (Swamp rabbit)	1938			S		T
Lasiurus cinereus (Hoary bat)						U

* Key to Symbols

E	Endangered
T	Threatened
S	Special Concern
D	Deemed in Need of Management
P	Peripheral
U	Status Undertermined
C	Categorical Listing - Taxa for which there is sufficient information to support listing; however, the species has not been formally listed.

Sources - Threatened and Endangered Species Lists

Fed	US Department of the Interior, Fish and Wildlife Service. 1979. <u>List of endangered and threatened wildlife and plants</u> , republication. 50 CFR 17-3636-3654.
	US Department of the Interior, Fish and Wildlife Service. 1980. <u>Endangered and threatened wildlife and plants; review of plant taxa for listing as endangered or threatened</u> . 50 CFR 17: 82480-82569.
TN	Tennessee Wildlife Resources Agency. 1975. <u>Tennessee Wildlife Resources Commission proclamation, endangered or threatened species</u> . Nashville, Tennessee 3 pp.
	Smithsonian Institution. 1975. <u>Report on endangered and threatened plant species of the United States</u> . US Government Printing Office, Washington, DC 200 pp.
THP	Tennessee Heritage Program. 1981 <u>Threatened and endangered species</u> . Tenn. Dept. Conserv., Nashville, Tennessee.
KY	Branson, Branley A., et al. 1981 Endangered, threatened, and rare animals and plants of Kentucky. <i>Tran. Acad. Sci.</i> Vol 42(3-4), 1981 12 pp.

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4.06 Water Quality

The water quality of Lake Barkley is generally good, showing considerable recovery from the upstream degradation incurred primarily from the Greater Nashville Metropolitan Area. Other sources of pollution are Clarksville (municipal and industrial discharges), Cumberland City (municipal and TVA steam plant discharges), and Dover (municipal discharges). Although low dissolved oxygen concentrations have been observed in bottom waters of Lake Barkley during the stratification period, good water quality is maintained both by the recovery from upstream pollution and by the relative absence of pollutant discharges to this river segment.

Water quality in the tailwaters and downstream areas is of high quality, supporting an excellent fishery. This high quality results, to a great extent, from the high flow augmentation from Lake Barkley.

Approximately 54,523 people are served by 10 municipal water supply systems, which withdraw a total of 5,468 tgp/d from water sources in the area. Streams and reservoirs provide 5,117 tgp/d or 93.6 percent of the total withdrawal, while springs, which provide 159.4 tgp/d or 2.9 percent, are the next major municipal water source. Twenty-eight industrial users withdraw a total of 1,311.1 tgp/d, all from municipal water supply systems. An average of approximately 115.5 tgp/d are recirculated — for example, used and returned to the hydrologic system. Twenty-one agricultural water users withdraw a total of 116.4 tgp/d for irrigation uses; 64.8 tgp/d are withdrawn from streams and reservoirs (55.7 percent), and 38.4 tgp/d are withdrawn from ponds (33.0 percent). One industrial and four municipal intakes are located between CRM 0.0 and CRM 148.7, and two municipal intakes are located on the navigable portion of the Red River.

Again, the water quality of Lake Barkley is good compared to other navigable waterways. This is primarily due to the relative lack of highly developed adjacent areas and associated industrial and municipal discharges. Dredging and other activities necessary to maintain the navigation channel have some limited adverse effects on water quality. However, this activity has not severely limited recreation use of Lake Barkley.

Data are collected by the Corps of Engineers at nine locations on Lake Barkley between Cumberland River Mile 30.2 in the tailwaters and Mile 148.3 near Cheatham Lock and Dam. Data collected from these stations show surface temperatures in the lake range from a maximum of about 30° C (86° F) in the summer to near freezing during severe winters. Although outflows from upstream storage projects are cold throughout the year, the temperature of these waters is near equilibrium by the time they enter the Lake Barkley headwaters. Flows in the upper reaches of the lake produce sufficient turbulence and vertical mixing to prevent stratification; however, the deeper downstream areas exhibit weak stratification. Although the temperature difference between the surface and bottom layers is normally less than 3°C, the resultant density difference is adequate to inhibit vertical mixing.

One of the most significant impacts of stratification is a decrease in the dissolved oxygen (D.O.) content of the water in the deeper layers. This problem is generally more severe during low flow periods. Low flows increase the detention time of the water in the deeper layers. Although anaerobic conditions have not been observed, D.O. concentrations of about 1 mg/liter have been measured near the bottom. Of course, low D.O. conditions in the lake decrease D.O. concentrations in project releases.

The trophic classification of Lake Barkley is eutrophic. Nutrient concentrations in the inflows are relatively high, and during the warmer months of the year, cyclic algal

blooms of nuisance levels occur. The clarity of the surface waters is less than desirable for recreation. Secchi disc readings average about two feet and seldom reach four feet, the minimum considered desirable for recreation.

4.07 Cultural Resources

That cultural resources were extensively represented in archeological deposits along the Cumberland River in the present area of Lake Barkley was only recently known. Prior to inundation, systematic survey work in the Lake Barkley basin was carried out by representatives of the states of Kentucky and Tennessee in cooperation with the National Park Service. This initial systematic work, beginning in 1958, resulted in the location of approximately 52 archeological sites within the basin, and by 1966, testing and excavation had been completed at a number of surveyed sites.

Cultural resources representative of all stages of human tenure in the New World, from palco-Indian (approximately 12,000 years ago) through the Historic Period and including the Civil War, have been identified as occurring within the study area. Despite the previous research, disparity in the goals of the various researchers in the Lake Barkley area has resulted in incomplete descriptions of the prehistoric and historic nature of occupation within this area of the Cumberland River. Research problems remain centered around considerations of chronology and site location.

At the present time, extensive systematic survey work is being carried out at all recreation areas on Lake Barkley where impacts of proposed development and continued use may affect cultural resources. Additionally, selected areas are being subjected to complete historical overviews, and other areas are being examined to obtain a more in-

depth description of the nature of archeological deposits possibly affected by inundation. A complete report resulting from these studies will be available in 1982.

Among the currently known culturally significant sites on or near the project are the following:

The Canton Hotel, Canton, Ky;
Center Furnace, LBL;
Charlotte Dickson County Courthouse, Charlotte, Tn;
Fort Donelson National Military Park, Tn;
Furnaces, Palmyra, Ky;
The Homeplace, LBL;
Jefferson Davis Monument State Shrine, Fairview, Ky;
Kelly Furnace Office Building, Old Eddyville, Ky;
Kelly's Suwanne Furnace Office, Kuttawa, Ky;
Masonic Lodge No. 121, Cadiz, Ky.

Culturally significant sites in the Clarksville, Ky. vicinity are:

Downtown Historic District (City Hall Square & Gazebo),
Fort Bruce,
Sevier Station,
approximately 20 residential sites;

In the Dover, Tn. vicinity:

*Bear Springs Furnace,
Cumberland Rolling Mill,
Dover Inn,
Fort Heary,
Great Western Furnace;*

In the Princeton, Ky. vicinity:

approximately 9 residential sites;

In the Smithland, Ky. vicinity:

*Livingston County Courthouse,
St. Felix Hotel,
Smithland Lodge,
approximately 10 residential sites.*

Historical sites of particular interest are:

Fort Donelson National Military Park & National Cemetery, National Park Service (NPS),
Site 718:

At Dover, Tennessee, a 600-acre National Park Service facility preserves the remnants of a large Confederate fort and contains a cemetery representing both sides of the Civil War. This was the place where the Union Army won one of its first major victories of the Civil War, in February of 1862, under the leadership of Brigadier General Ulysses S. Grant. The Cumberland and the Tennessee Rivers were opened to Union travel after this battle and with the fall of Fort Henry on the Tennessee River. Thus, the route was

opened for Grant's penetration into the heartland of the Confederacy, along the river now identified as Lake Barkley.

The Homeplace - 1850, Land Between the Lakes (LBL):

The Homeplace - 1850 is a living history farm dedicated to the preservation of the buildings, lifestyles, and farming practices of those Americans who settled between the Cumberland and Tennessee Rivers during the first half of the nineteenth century. Sixteen log structures originally found in the LBL area comprise this two generation farm.

Lyon Furnaces, Lake Barkley area:

Lyon County has many historic old iron furnaces throughout the county, as this was a center for the iron industry during the last century. In the early 1800's William Kelley invented the modern steel-making process in Lyon County. Other examples of iron furnaces, constructed of limestone, may be found in the Lake Barkley area, both in Kentucky and in Tennessee.

Several archeological sites also exist in the Lake Barkley area. Other architecturally and historically significant sites exist along the eastern edge of Lake Barkley. Many of these have been marked by state and local historical groups.

4.08 Recreation

Lake Barkley is a major component of one of the largest outdoor recreation complexes in the midwest which offers water-based recreation at two large reservoirs and a variety of associated land-based opportunities at federal, state, local, and private facilities.

While the various components of this recreation complex are discussed in Chapter VII, the most important of these are briefly listed below.

4.08.01 Federal, State, and Local Recreation Facilities

Land Between the Lakes (LBL) was developed as an outdoor recreation demonstration area by the Tennessee Valley Authority. Since its inception in 1965, the area has become heavily used for youth camps, environmental education, family and group camping, fishing, horseback riding and camping, off-road vehicle trails, driving, hunting, and professional training seminars. There are no marinas, concessions, or resort-type facilities at LBL.

There are four state park properties in the immediate vicinity of Lake Barkley. They are Lake Barkley State Resort Park (Site #131), Kentucky Dam Village State Park, and Ken Lake State Park, all managed by the Kentucky State Park Department, and Paris Landing State Park, managed by the Tennessee Department of Conservation. The three Kentucky parks are all resort parks with lodges, cabins, campgrounds, golf courses, marinas, and other resort-type facilities (Table 4.2). Tennessee's Paris Landing State Park offers camping, lodging, golfing, a marina, and nature trails among other opportunities. These parks offer 461 rooms for visitors. Preliminary plans have also been made for a state park in Lyon County, Ky.

Table 4.2
State Park Facilities

<u>Facilities</u>	<u>L. Barkley</u>	<u>Kenlake</u>	<u>KY Dam</u>	<u>Paris Landing</u>
Acres	3600	1800	1200	820
Lodge (Rooms)	120	48	72	100
Dining	275	150	300	240
Cabins (Number)	9	34	59	—
Camping (Sites)	233	92	225	46
Picnicking	200	10	35	110
Entertainment	yes	—	seasonal	yes
Programmed Recreation	yes	yes	yes	seasonal
Interpretation	yes	—	—	—
Marina (Slips)	164	161	300	209
Golf (Holes)	18	9	18	18
Min. Golf	—	—	yes	—
Tennis (Courts)	4	8	4	2
Playgrounds	2	4	2	3
Hiking Trails (Miles)	9	3/4	—	—
Stable	yes	yes	yes	—
Beach	1	1	1	1
Swimming Pool	1	1	1	2
Convention Facilities	yes	yes	yes	yes

In a seven-county area of Kentucky near Lake Barkley there are seven county park departments. Described below, some of these have joint city-county arrangements. In this area, there are also two city park departments. In addition, Fort Campbell, straddling the Tennessee-Kentucky state line, has internal recreation programs. Fort Campbell officials have also used Corps of Engineers property on an agreement basis for reservoir access for its personnel.

The Lyon County Park and Recreation Department, Eddyville, Kentucky, has a newly established park board which is in the process of developing a fairgrounds-park complex. This will include picnic facilities, ball diamonds, and a community center. It is aimed at meeting the recreation needs of residents of the immediate community.

The Hopkinsville Christian County Recreation Commission, Hopkinsville, Kentucky, maintains several local parks.

The Murray-Calloway County Park Board, Murray, Kentucky, maintains a 106-acre county park offering swimming, hiking trails, sports facilities, special exhibits, and summer theater.

The Livingston County Fair and Park Board, Smithland, Kentucky, maintains a relatively small local park program.

The Princeton-Caldwell Recreation Board, Princeton, Kentucky, manages Big Spring Park. It protects the major feeder of Eddy Creek, which empties into Lake Barkley.

Other local park boards in operation in the Lake Barkley area are as listed below:

The Cadiz-Trigg County Park Board, Hardin, Kentucky;
the Hardin-Marshall County Park Board, Hardin, Kentucky; and the
Benton Recreation Department (city in Hardin Co.), Benton, Kentucky.

Three local park and recreation departments in a five-county area of Tennessee, including Henry, Houston, Stewart, Montgomery, and Cheatham Counties.

The Montgomery County Recreation and Historical Board, Clarksville, Tennessee, established in 1965. In 1979, it operated a part-time program on a \$150,000 budget collected from county taxes. It has a current master plan and allows non-resident use of its programs and facilities.

The Clarksville Recreation and Parks Department, Clarksville, Tennessee. It manages various parks, including McGregor Park, which provides a heavily-used access to the reservoir and is leased from the Corps of Engineers.

The Paris Recreation and Parks Department, Paris, Tennessee, which offers local parks at some distance from the reservoir.

Two parks adjacent to the reservoir, maintained by the City of Dover. One is the Dover Recreation Park, Site #153, which is leased from the Corp of Engineers.

In virtually all of the above park systems, services are provided primarily to local residents and are not designed to accommodate tourists. However, several of these agencies are in positions to obtain a direct lease of Corps of Engineers land. Such an

arrangement could be of mutual interest, with the local agency gaining a resource base at relatively little cost, and the Corps of Engineers able to see its facilities more intensely utilized and more carefully supervised. Precedents for this type of arrangement exist at Dover and Clarksville. These cities hold direct leases for the operation and management of sites owned by the Corps of Engineers.

4.08.02 Private Recreation Facilities

Most of the private recreation enterprises in the Lake Barkley area are small operations. Some have demonstrated concern for making the area attractive and aesthetically pleasing, while others have the appearance of under-capitalized attempts to attract customers through the use of low-budget advertising. However, the garishness sometimes associated with tourist centers has not developed in this area. There is relatively little congestion and over-commercialization.

No private recreational areas exist on Lake Barkley project lands. There are numerous commercial campgrounds and residential developments on private lands adjacent to the project boundary where public shoreline lands are limited. The campgrounds generally cater to family vacationers in the summer and to fishers and hunters in the spring and fall seasons. If commercial marina services are not available nearby, permits are granted at these developments for limited moorage by campground users. The successful residential developments tend to be year-round rather than seasonal dwellings. There are numerous subdivisions which have been developed without a great deal of success due to the limited access, lack of utilities, and rugged topography of the area. The economy of the western Kentucky area has gradually changed from agriculture to tourism and light industry over the past thirty years. Completion of Kentucky Lake in 1945 and Lake Barkley in 1966 removed much of the more desirable agricultural land from production.

At the same time, however, the large influx of tourists resulted in additional revenue which helped to stimulate the local economy. Motels, restaurants, fishing supply shops, gift shops, and recreation centers have been established throughout the area. While most of these investments have been moderately successful, large resort centers have not been developed.

Present commercial facilities operating in the area include several quality campgrounds, restaurants, motels, marinas, bait and tackle shops, and other retail outlets related to outdoor recreation. A few amusement type attractions and souvenir shops have appeared. Table 4.3 lists twenty-one commercial campgrounds providing nearly 2,000 campsites in the area at an average price of \$5.50 per night in 1980. There are approximately 1500 commercial hotel and motel rooms within a 45 minute driving radius of Lake Barkley.



Entrance to the Lodge Complex,
Lake Barkley State Resort Park (Site #131)

Table 4.3

Private Campgrounds in Lake Barkley Region

<u>Location</u>	<u>Sites</u>	<u>Acres</u>	<u>Approx. Fee</u>
<u>Near Lake Barkley</u>			
Holland Tr. Park, Cadiz	20	6	\$3.50
Bay Area Camping Resort, Eddyville	90	25	7.00
Ramey CG, Eddyville	71	14	6.00
Lakeview Hills, Cadiz	84	47	5.00
Holiday Hills, Eddyville	177	70	6.50
Daytona Shores, Eddyville	225	130	6.25
Tarryon Camping Resort, Kuttawa	137	80	4.00
Iron Hill Campground, Kuttawa	54	513	5.00
Lazy Beaver Campground, Kuttawa	65	20	5.00
	<u>923</u>	<u>905</u>	
<u>In Kentucky Lake Area</u>			
Cypress Bay Resort, Buchanan	12	5	\$5.00
Shamrock Resort, Buchanan	54	16	8.00
Sportsman's Safari CG, Benton	80	30	6.50
Harbor Hill Marina, Aurora	60	7	4.50
Lakeside Campground, Aurora	88	13	6.50
Lakewood Campground Resort, Aurora	75	8	5.50
Ken-Lake KOA, Aurora	68	24	5.50
Moors Resort, Gilbertsville	100	50	5.00
Will Vera Village, Benton	200	40	5.00
King Creek Resort, Benton	75	16	6.00
Big Bear, Benton	93	9	5.00
KY Lake Dam KOA, Calvert City	100	30	6.50
	<u>1005</u>	<u>248</u>	
	<u>==</u>	<u>==</u>	<u>==</u>
	1928	1153	\$5.50 avg.

Visitors from distant places can view the Lake Barkley-Kentucky Lake area as one large unit offering a variety of recreational opportunities. Although there are many different, and sometimes competing, public and private agencies involved in providing opportunities here, their combined facilities offer an outstanding package of vacation fun. They function as a giant recreation complex, consisting of a wide diversity of opportunities, from the primitive to the semi-plush. This tourist-oriented area has the potential to increase the richness and diversity of recreational experience opportunities and thus to become even more attractive to the public.

Tables 4.4 and 4.5 indicate the variety and magnitude of agencies and resources involved in the project area.



One of the many iron furnaces to be found in the Lake Barkley vicinity.

Table 4.4

Campgrounds Serving Lake Barkley Area Visitors

<u>Agency-Campground</u>	<u>No. Sites</u>
Army Corps of Engineers	
Devils Elbow (fee)	21
Hurricane Creek (fee)	51
Canal (fee)	100
Free campgrounds (10)	<u>214</u>
Total	386
Tennessee Valley Authority—Land Between the Lakes	
Hillman Ferry (400 acres) (fee)	390
Rushing Creek (500 acres) (fee)	210
Piney (200 acres) (fee)	200
Other small campgrounds in Tennessee portion	50
Other small campgrounds in Kentucky portion	<u>100</u>
Total	950
Private Enterprise	
On/near Lake Barkley, 9 campgrounds of 905 acres	923
On/near Kentucky Lake, 12 campgrounds of 248 acres	<u>1005</u>
Total	1928
State Parks	
Lake Barkley State Resort Park	80
Kenlake State Resort Park	92
Kentucky Dam Village State Resort Park	225
Paris Landing State Resort Park	<u>80</u>
Total	477
Total Campsites	3741

Table 4.5

Elements of the Recreation Complex

<u>On Project</u>	<u>Acres</u>
Federal	
Army Corps of Engineers—Lake Barkley (water surface at full pool)	57,900
Recreation Sites	2,530
Tennessee Valley Authority—	
Land Between the Lakes	170,000
US Fish & Wildlife Service—Cross Creeks NWR	8,862
National Park Service—Ft. Donelson	
National Military Park and National Cemetery	600
Private	
Resorts, campgrounds, marinas, and service shops	(NA)
State	
Lake Barkley State Resort Park (Kentucky)	3,600
Barkley Waterfowl Area (Tennessee)	3,608
Kentucky waterfowl refuges	(NA)
Local Public	
Several city-managed parks	(NA)
<u>Nearby</u>	
Federal	
Tennessee Valley Authority--Kentucky Lake	160,000
Private	
Resorts, marinas, campgrounds, attractions, and service shops, esp. on Kentucky Lake	(NA)
State	
Paris Landing State Resort Park (TN)	820
Kenlake State Resort Park (KY)	1,800
Kentucky Dam Village State Resort Park (KY)	1,200
Pennyrile State Forest and State Resort Park (KY)	15,000
Stewart State Forest (TN)	4,000
Local Public	
Various small city and county parks (seven county systems)	(NA)

LAKE BARKLEY MASTER PLAN

CHAPTER 5 - FACTORS INFLUENCING AND CONSTRAINING RESOURCE DEVELOPMENT AND MANAGEMENT

5.01 General Environmental and Recreational Objectives

Lake Barkley, over its 118 mile length, incorporates three distinct physiographic zones, each of which has identifiable opportunities and constraints for recreational development. The following eight objectives, while embracing the total Lake Barkley Project, will be pursued through distinguishable planning approaches for the three zones.

- 1 — Maintain and enhance the integrity and quality of the natural resources of water, soil, forest, and associated scenery of Lake Barkley and its adjacent lands, with particular regard for U. S. Government properties.
- 2 — Establish a unified identity for Lake Barkley project sites, rather than an apparently disassociated collection of picnic sites and boat ramps.
- 3 — Promote recreation suitable to the varying, yet distinct, characteristics of the lake and associated resources and within the carrying capacity of each specific site.
- 4 — Provide recreational users with an appropriate variety of recreational opportunities and supporting services, including hiking and equestrian trails, interpretive sites, auto tours, primitive and developed camping, and others, in addition to the traditional fishing, boating, picnicking and swimming facilities.

5 — Enrich recreational experiences through increased interpretive facilities and services.

6 — Modify or close existing sites in order to increase efficiency and economy of operation, and encourage cooperative management of sites by a variety of area agencies and/or entrepreneurs.

7 — Manage all lands and water areas to enhance their ability to support diverse populations of fish and wildlife species, both game and non-game; and insure that all lands allocated specifically to fish and wildlife purposes are managed to their maximum capability.

8 — Maintain operations, recreational uses, and development within the public laws cited in Chapter 1.

5.02 Demographic Characteristics

5.02.01 Population

(1) Growth

Lake Barkley is located in Livingston, Lyon, and Trigg Counties in Kentucky and Stewart and Montgomery Counties in Tennessee (Dickson and Cheatham Counties, Tennessee are adjacent to the uppermost portion of Lake Barkley for a distance of less than 4 miles). The only significant urbanized areas within these counties are Clarksville and the nearby Fort Campbell Military Reservation. Historically, the area's population has been sparse, with the land in Lyon and Trigg Counties, Kentucky, primarily in agricultural use. In

these counties, where a major portion of the impact of Lake Barkley's development is found, the population was at its highest level in 1910 (Table 5.1).

Table 5.1

Population - Lyon & Trigg Counties, Kentucky

<u>Year</u>	Lyon County, Kentucky	Trigg County Kentucky
	<u>Population</u>	<u>Population</u>
1850		
1860	5,807	10,129
1910	9,423	14,539
1940	9,067	12,784
1970	5,562	8,620
1976	5,900	9,100

Source: Soil Conservation Service (1981), Soil Survey.

Recent growth in the five-county area (Livingston, Lyon, Trigg, Montgomery, and Stewart) has been significant. During the decade 1970-1980 the average population increase for these five counties was twenty percent.

Lake Barkley, when coupled with the older Kentucky Lake, has been a strong factor in the growth of the adjacent counties in Tennessee and Kentucky, most noticeably in Lyon, Livingston, and Marshall counties of Kentucky where population growth from 1960 to 1980 averaged 32%. Lyon, Trigg, and Stewart Counties have faired very well considering that major land areas were lost for habitation with the impoundment of Lake Barkley and the establishment of the Land Between the Lakes demonstration project. Lyon County

lost approximately fifty percent of its land area, while Trigg and Stewart counties lost in excess of thirty percent. All three experienced a population loss during the 1960's when Lake Barkley and Land Between the Lakes were acquired (See Table 5.2).

Table 5.2

Population Growth in the Lake Barkley Vicinity

<u>County/State</u>	<u>Year 1960</u>	<u>1970</u>	<u>1980</u>
Caldwell, Kentucky	13,073	13,179	13,473
Calloway, Kentucky	20,972	27,692	29,995
Christian, Kentucky	56,904	56,224	66,265
Crittendon, Kentucky	8,648	8,493	9,225
Livingston, Kentucky	7,029	7,596	9,252
Lyon, Kentucky	5,924	5,562	6,502
Marshall, Kentucky	16,736	20,381	25,636
Trigg, Kentucky	8,870	8,620	9,366
Montgomery, Tennessee	55,645	62,721	83,342
Stewart, Tennessee	7,851	7,319	8,665

Source: The Census of Population and Housing, U.S. Department of Commerce, Bureau of Census (1980 figures are preliminary estimates).

Future population growth in the Lake Barkley area may be expected to occur primarily from the Barkley Dam southward to Cadiz and in the Clarksville-Hopkinsville Standard Metropolitan Statistical Area (SMSA), which includes Fort Campbell. The opening of I-24 and the existing developed homesites support the Lyon/Trigg county growth, while com-

mercial river traffic and general economic development resulting from tobacco and other industrial expansion, as well as increased military spending, are encouraging growth in the Clarksville-Hopkinsville SMSA.

There is always the possibility of a single major project, such as the recently proposed synthetic fuel industry development near Evansville, Indiana, having a significant impact on the region's population. The Tennessee-Tombigbee Waterway is expected to have some effect in the project area, with its main impact being on the Tennessee River (Kentucky Lake).



Private lakeside residential development,
Lake Development Zone 1

(2) Age Distribution

Table 5.3

Median Age - Selected Counties in Kentucky and Tennessee

<u>Kentucky</u>	<u>1960</u>	<u>1970</u>
Caldwell	35.4	35.4
Calloway	32.2	26.0
Christian	24.6	23.3
Crittenden	35.5	36.1
Livingston	33.4	33.1
Lyon	33.7	35.7
Marshall	30.8	32.6
Trigg	31.6	32.3
 <u>Tennessee</u>	 <u>1960</u>	 <u>1970</u>
Montgomery	23.1	23.3
Stewart	32.0	35.0

Source: Census of Population and Housing
U.S. Department of Commerce
Bureau of the Census
1960
1970
Tennessee Valley Authority

On the average, between 1960 and 1970 the median age of the population found in all Kentucky counties shown in Table 5.3 decreased slightly, while the median age in Tennessee counties shown increased slightly. On the whole, the median age of the population in all ten of these counties remained constant, being 31.23 in 1960 and 31.28 in 1970. Data for 1980 was not available at printing.

(3) Education

The immediate area of the lake is well served by primary and secondary schools, most being consolidated county systems. There are three state universities and three community colleges in the surrounding region. They are:

Austin Peay State University, Clarksville, Tennessee

University of Tennessee at Martin, Martin, Tennessee

Murray State University, Murray, Kentucky

Hopkinsville Community College, Hopkinsville, Kentucky

Paducah Community College, Paducah, Kentucky

Madisonville Community College, Madisonville, Kentucky

Other universities and colleges are available to the residents of the area in nearby Nashville, Tennessee; Memphis, Tennessee; Bowling Green, Kentucky; Evansville, Indiana; and Illinois. These and other institutions are helping to elevate the general educational and cultural opportunities of residents of the region. They may be developed as valuable centers for supplying seasonal employees and consultants, and in initiating research and demonstration projects using the lake and surrounding activities as a basic resource.

(4) Disposable Income/Poverty Influence.

On the average, incomes in the immediate area are among the lowest of those found in Kentucky and Tennessee. The development of recreational attractions such as Lake Barkley has been important in improving economic opportunities and in attracting investment capital to the region. Table 5.4 indicates the growth in per capita income over the ten year period from 1965 to 1975 for the five counties adjacent to Lake Barkley. The recent growth of income in Montgomery County, with its urban and military concentration, is somewhat slower than in the remaining four more rural counties.

Table 5.4

Per Capita Personal Income

<u>Year</u>	<u>Livingston Co. Kentucky</u>	<u>Lyon Co. Kentucky</u>	<u>Stewart Co. Tennessee</u>	<u>Montgomery Co. Tennessee</u>	<u>Trigg Co. Kentucky</u>
1965	1640	1492	1235	2250	1691
1970	2709	2371	2549	3056	2532
1973	4115	3464	2950	4280	3672
1975	4506	4101	3490	4869	4115
1977	4476	4850	4260	5456	5442
1979	6923	6075	5435	6716	6358

* Expressed in current dollars

Sources: Survey of Current Business, Bureau of Economic Analysis, U. S. Department of Commerce.

5.02.02 Economic Activity

Recreational land use has become an important factor in the economy of the region as a whole, but most dramatically in Lyon, Trigg, and Stewart Counties. Large tracts of land in these counties have been transferred out of private ownership and into federal recreation areas as in the case of Land Between the Lakes and Lake Barkley. Approximately one-half of Lyon County and one-third of Trigg and Stewart Counties are now designated as public recreation lands.

This large proportion of federal recreation lands and associated business activities has made tourism and recreation services a major focus of economic activity in the area. However, the actual economic impact of these land uses is not known. Agriculture is the primary use of private land in Lyon, Trigg, Montgomery, and Stewart Counties, as it is in all adjacent counties. Grain, tobacco, and livestock dominate and include soybeans, corn, wheat, burley tobacco, dark tobacco, alfalfa, cattle, and hogs. Representing the majority of the area's population supporting the tobacco production, Clarksville is one of the nation's major tobacco markets.

Diverse manufacturing and commerce activities are also in the region, focused primarily in Clarksville, Hopkinsville, Princeton, and Cadiz. The two impoundments, Barkley and Kentucky, have long been important to commercial river transportation. The Lyon County Port Authority industrial dock activity near Clarksville and the Barkley terminal at Money Cliff, Kentucky, indicate potential for the development of loading/unloading facilities and resulting industrial and distribution activities.

Although at least one-third of the area is forested, the production of raw materials and products related to forest resources is relatively unimportant, as yet, in the local

economy. There are no major wood products firms in the area; several small sawmills and related enterprises support a few families.

The effect of the recreational facilities on the development of the tourism industry, and thus economic development of the region, is examined in the following analysis.

This analysis is based on the income method, using county and regional income as a cornerstone. Regional income is defined as the current dollar value of all the goods and services created in the region during a particular period of time, e.g., one year. All the expenditures in the region during the one year period for the purchase of goods and services produced in the region are totaled. Such expenditures are divided into the categories of consumption, investment, government, and exports minus imports (net exports). Tourism activity is somewhat like an export since tourism services are bought by people coming from other regions. Tourism activity in the area may also decrease the number of imports of tourism services to the region, by decreasing the number of people going out of region for recreational services. An increase in net exports has a multiplier effect on the economy of the region, simply because outside dollars spent in the region would be used to purchase goods and services from other businesses in the area. As a result, one dollar increase in net exports would create an increase in the overall income of the region by more than one dollar.

In this analysis of the Lake Barkley area, it is assumed (and verified) that the economy of the region was not greatly influenced by any major changes (other than historical trends) in economic activity except for tourism. Thus, any significant increase in the growth of personal income can be attributed to the increased recreational facilities and the growth of the tourism industry.

Statistical analysis, using linear regression of personal income changes by county, indicates that economic growth in the region since 1965 (one year prior to impoundment) has been significantly more rapid than during the period from 1955-1964. This acceleration of real personal income growth since 1965 can be attributed largely to the expansion of the tourism industry in the region.

5.02.03 Summary of Effects of Demographic Characteristics on Public Use

It appears local use of Lake Barkley will probably remain constant or increase steadily with population growth. Economic investment and activity in the area have become strongly tourist-oriented since the construction of the reservoir. Tourist promotion efforts of local and state organizations have contributed to the development of the image of the area and promoted cooperation among suppliers of recreational services.

The local population has directed a significant portion of its business activity toward tourist economy and has apparently benefited from it in an economic sense. Although there was a loss in population associated with acquisition of federal lands in the 1960s, the general population has begun to rebound and economic benefits have accrued to the area.

5.03 Factors Affecting Development Potential of Project Lands

The potential of any property to absorb the impact of recreational development and use is a function of its natural characteristics, the design of facilities, the intensity of use, and site management. In this section, the natural characteristics of the property are addressed in general terms.

The key natural features that may cause limitations on carrying capacity are geology, soils, topography, vegetation, and water quality. These characteristics provide a first approximation of the recreational carrying capacity of the site. Areas having a low natural carrying capacity will require relatively high investments in the engineering of facilities and in management, if they are to provide sustained benefits. Areas having a higher carrying capacity can provide sustained recreation services with relatively lower investments of capital and management. These areas are also more flexible in the variety of uses to which they may be put.

5.03.01 Soils

There were soil survey documents available for four of the counties covered by the reservoir project — Stewart and Montgomery Counties, Tennessee, and Lyon and Trigg Counties, Kentucky. The major soil associates near Lake Barkley are:

1 — Arlington-Lindside-Beason association lies in the bottom lands of the river in a fairly narrow band along the sides of the lake and beneath lake water. Soils that are exposed are level and well-drained to somewhat poorly drained.

2 — Baxter-Brandon association extends westward from Montgomery into Stewart County on slopes and uplands adjoining association #1 above. Soil is on rolling to steep slopes and hilltops. It is cherty on hillsides and chert-free on hilltops. It is well-drained.

3 — Baxter-Mountview association is upstream from association #2 in similar slopes and upland positions, but is generally less steep. In a few areas, it immediately adjoins the reservoir as bluffs. The soils are well-drained, cherty on hillsides but not on hilltops.

4 — Baxter-Hammack or Baxter-Hainmack-Brandon association is the largest area of soils next to the lake in Kentucky. It is deep, sloping to steep, well-drained soil in cherty limestone.

5 — Brandon-Saffell is all in Land Between the Lakes, forming a large segment of the western shore and uplands along Lake Barkley.

6 — Hammack-Baxter-Nicholson complex of soils forms the uplands to the east and north of Lake Barkley, joining the Baxter-Hammack association one to twenty miles back from the lake.

7 — Pembroke-Grider soils occur in positions similar to association #6. It is a deep soil on karst uplands and in a few upland lenses near the reservoir in Tennessee.

8 — Nolin-Lindside-Elk association is flood plain and terrace soils, level and well-drained. They are important at several local occurrences, e.g., Cadiz.

Within these associations, there are five key soils series that warrant description. They are as follows:

1 — Baxter series—deep, well-drained, moderately permeable cherty soils on uplands; from cherty limestone; slope 6-30%; severe erosion hazard; more than 35% clay; 15-35% coarse, angular chert fragments.

2 — Hammack series—deep, well-drained, moderately permeable soils on uplands, on ridgetops, and on side slopes of both karst and dendritic areas; surface and upper subsoil formed in loess, so chert fragments are not common.

3 — Brandon series—deep, well-drained soil on uplands; slope 6-50%; surface layers fine-silty, as in Hammack.

4 — Saffell series—deep, well-drained, moderately permeable soils on uplands; formed in gravelly material; slope 6-60%.

5 — Nicholson series—deep, moderately well-drained soils with a fragipan; on uplands; silty-clayey; slopes 0-12%.

Most of the soils in this region have been involved in cultural production. They are fairly productive, but frequently limited by their slopes. This is particularly true in the properties adjacent to Lake Barkley. Here, tree cover and carefully controlled recreational use are the most appropriate uses of these soils (Table 5.5).

Soils are further discussed in reference to individual site plans.

Table 5.5

Recreation Limitations of Major Soils Series

<u>Soil Series</u>	<u>Camp</u>	<u>Picnic</u>	<u>Trails</u>	<u>Septic Field</u>
Baxter	severe (slope)	severe (slope)	severe (slope)	severe (slope)
Hammack	severe (slope)			severe (slope)
Brandon	Moderate (slope)	Moderate (slope)	severe (erodes easily)	severe (poor filter, slope)
Nicholson	slight	slight	slight	moderate (poor filter)

5.03.02 Geology

Most of the area east of Lake Barkley is underlain by Mississippian limestone (Meramec Series) with a small area of sandstone-shale-limestone. In Kentucky, these are part of the Western Pennyroyal (or Pennyrite) Physiographic Area. Much of the predominant limestone area is in karst topography, with a rolling to gently rolling surface. Much of the rainfall runoff enters underground streams through basins and sinkholes, rather than forming dendritic streams.

Lake Barkley and the land to its west are in the Cumberland-Tennessee Rivers Physiographic Area. This is underlain by the Cretaceous System and some areas of the Quaternary System (most of the latter is covered by Lake Barkley and Kentucky Lake). In this area, where the Cretaceous meets the Mississippian, iron deposits and limestone

are found together. This combination was important to the early development of the local economy.

Loess (wind deposited silt) overlies most of the uplands, to depths of up to four feet. It gradually thins out from east to west.

5.03.03 Topography

Near the reservoir, the topography ranges from gently rolling to steep. In several places, bluffs provide attractive views of the water and surrounding land. The topography is scenic and varied, but seldom spectacular. The relatively steep hills and narrow valleys on most of the U. S. Government properties require sympathetic site engineering for all recreation developments. Development of forest cover of most private and public lands adjoining the reservoir should be encouraged to avoid erosion and to thereby maintain soil and water quality.

5.03.04 Vegetation

The oak-hickory forest type covers two-thirds of the commercial land in the area. Most of the forested land in the immediate area is in federal ownership — Land Between the Lakes, Fort Campbell Military Reservation, and the Corps of Engineers.

Private woodlands occur in mostly small (24 acres average) and unmanaged areas. Forested lands could produce about fifty cubic feet of timber or more per acre per year, but average thirty to thirty-five cubic feet.

5.03.05 Capacity to Support and Expand Development

The major physical limitations to present use and expanded development are related to erodibility of soils and steepness of slopes. There are areas on the project where certain recreational uses are inappropriate or would be very costly to properly engineer due to soils limitations, although on most of the properties careful design and construction would allow expanded use. It is important to maintain and improve a healthy forest cover and stable soils in these areas. All construction and use management activities should recognize this parameter as a prerequisite to other actions. Campsites and picnics sites will not be constructed next to the shoreline in most areas. While such a campsite location would be attractive, it would result in overuse of these areas, trampling of the vegetation, and accelerated erosion.

The lake's generally shallow water restricts the development of use and associated facilities for sailing, high-speed boating, and water skiing.

5.04 Accessibility

The Lake Barkley project lands are in a somewhat remote area of western Kentucky and Tennessee, where incomes and employment have been historically low. There are no large population centers that provide easy access for day-use activities. Paducah, Kentucky; Evansville, Indiana; and Nashville, Tennessee are the nearest large population centers. Other large cities are within week-end use distance include Louisville, Kentucky; Indianapolis, Indiana; Memphis, Tennessee; and St. Louis, Missouri.

Lake Barkley is within a day's drive of 80 million Americans. Within this one-day, 500 mile radius of Lake Barkley are:

New Orleans	Birmingham	Atlanta
Charlotte	Cincinnati	Cleveland
Indianapolis	Chicago	Milwaukee
Detroit	Des Moines	St. Louis
Kansas City	Nashville	Memphis
Little Rock	Tulsa	Columbus

In addition to highways, there are airports for private airplanes at Kentucky Dam Village State Resort Park, Lake Barkley State Resort Park, Cadiz, and Clarksville, all adjacent to Lake Barkley.

5.04.01 Interstate System

A fine highway system makes Lake Barkley easily accessible to major population centers. Recently completed Interstate-24 provides non-stop driving from Nashville to Eddyville, on to Paducah and St. Louis. The accompanying map (Plate 1) indicates the road access network.

The Western Kentucky Turnpike connects with the Pennyrile Turnpike out of Evansville-Henderson and with I-65 out of Louisville; the completion of I-155 will connect Memphis with Eddyville.

5.04.02 U.S. Highways

This area is also served by U.S. 641 and 62 along the northern end. U.S. 68 (KY 80) travels East-West about midway between Eddyville and Dover; it connects U.S. 41, to the east, through Hopkinsville. It bridges Lake Barkley and the major access route to Land Between the Lakes. U.S. 79 in Tennessee is the principal southern access, connecting Clarksville and Paris through Dover. It connects U.S. 41 and U.S. 641, which are north-south routes near the region.

5.04.03 State Highways

Important state highways along the eastern side of Lake Barkley include Tennessee 120-KY 139, Kentucky 164, Kentucky 274, and Kentucky 93. These are the principle access routes to or near most of the Corps of Engineers sites; some connect with county roads that lead directly to the sites. On the west side of the reservoir, the major road is "The Trace", which travels through Land Between the Lakes as Kentucky 453 and Tennessee 49. It connects U.S. 62-641 on the north with U.S. 68 and south with U.S. 79.

5.04.04 County Roads

County roads are important in connecting many of the project properties. Their level of maintenance and surfacing is quite variable. In general, internal roads of Corps of Engineer properties are in better condition than the county roads leading to them. Several of the important properties, e.g., Donaldson Creek and Bumpus Mills, are accessible only after travel on more than a mile of rough gravel roads.

The road system connecting some of the project lands is labyrinthian, which makes it necessary for the user who is not familiar with these roads to carry a detailed road map to find the various sites. This emphasizes the desirability of a well-maintained directional sign system to guide users to the sites, along with project maps and brochures.

5.05 Adjacent Land Users

5.05.01 Inventory

A significant portion of the land adjacent to the project is currently in agricultural use; public recreation and forest lands are the next largest categories of land use in the area. Residences and vacation homes are scattered throughout the project area. These exist as individual homes, in recreational subdivisions, and in several small towns. The Fort Campbell Military Reservation occupies several thousand acres near the project. A number of medium to small industries also exist on the east side of the reservoir, including the Lyon County Port. Private businesses, catering primarily to tourists and local residents, are immediate neighbors of the reservoir, especially in Lyon County, along Lake Barkley's northern shore. Many of these businesses have direct access to the reservoir or have a visual and environmental impact upon the reservoir area.

5.05.02 Developed Shoreline

As noted on the land use plans (plates 3 through 3.6), many shoreline areas in the lower portions of Zone 1 of the lake are currently or proposed for residential development or commercial campgrounds. The middle third (Zone 2) of the lake remains generally agricultural with limited residential and recreational development in the more accessible

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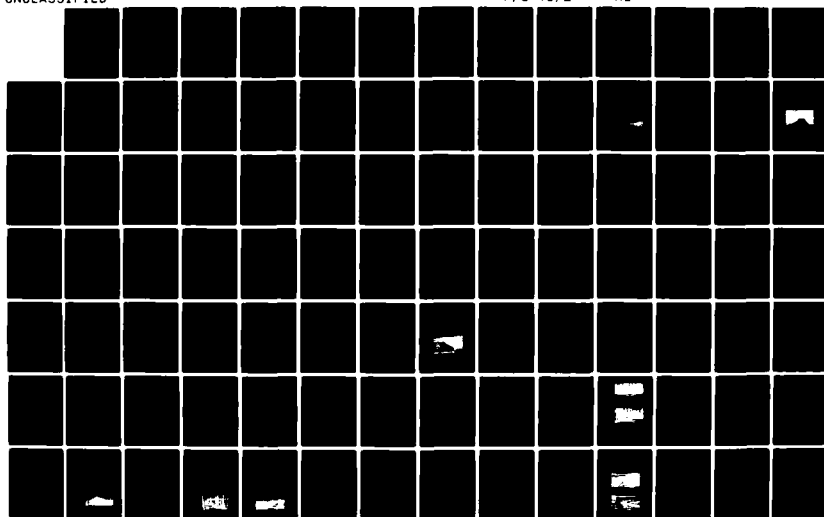
MASTER PLAN: LAKE BARKLEY CUMBERLAND RIVER KENTUCKY -
TENNESSEE(U) CORPS OF ENGINEERS NASHVILLE TN NASHVILLE
DISTRICT JAN 83

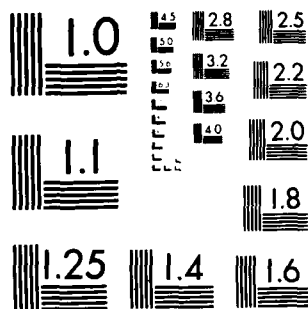
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

portions of desirable shoreline areas. The shoreline in Zone 3 is almost entirely agricultural. The communities of Cumberland City and Palmyra and the City of Clarksville are on this segment of the pool. The Cumberland City Steam Plant (TVA), several ports and two marinas and two sportsman clubs are located in Zone 3. The entire west shoreline from Dover to the canal is in LBL and contains no commercial or residential developments.

5.05.03 Trends

Various data indicate present land use patterns appear to be stabilized in relation to the percentage of land in agricultural and recreational categories. The popularity of recreational real estate during the late 60s and early 70s has caused major changes in the area. Recreational real estate became an apparently thriving business, especially in Trigg County. The highway west of Cadiz became "real estate row," with a string of sales offices for lakeside or lakeview subdivisions, lots, and summer homes. Although no surveys have been conducted or are available, it is estimated between 2000-5000 acres have been platted for subdivision. While much of this type of real estate has been sold, most of the lots stand empty. High interest rates and general economic conditions have halted or delayed building plans. Since the mid 1970s, recreational second home construction has fallen off nationwide; that trend is clearly evident around Lake Barkley. Some second home building is expected along the reservoir over the next few years, but it may be confined to the construction of small, self-financed cabins or the placement of trailers.

Trends in urban growth are expected to continue, with the largest expansion in the Clarksville area. If present trends continue, more residences and businesses can be expected around the northern parts of the lake, especially near the new interstate

highway interchanges.

5.05.04 Summary

Tourism and agriculture are now, and will probably continue to be, the principle land uses, as well as the mainstays of the local economy in the Lake Barkley area. The subdivision of many scenic areas has reached a stalemate in terms of sales and development, but, given improved economic conditions, could increase again. This could have an adverse impact on the natural aspect of the reservoir shoreline. Industrial development is not heavy on the reservoir, but commercial barge traffic is a major use of the waterway. The Lyon County Port Authority has installed a functional facility and is in position to expand when the market permits.

5.06 Public Use

5.06.01 General

Use data have been gathered by the Corps of Engineers since impoundment of Lake Barkley in 1966, when it was estimated there were 1.56 million days of use to the project. Public use increased rapidly, reaching nearly 5 million use days by 1974. During the project's first 15 years, peak was reached in 1978, when almost 5.4 million use days were estimated. In 1979 through 1981, there were slight declines in the figures, with about 5 million use days per year occurring in 1980 (Table 5.6). Some of these variations may be related to differences in the collection method and analysis of the traffic counter data.

TABLE 5.6

Public Use Days At Lake Barkley

1966	1,558,700
1967	1,629,800
1968	2,295,500
1969	2,832,400
1970	2,513,600
1971	2,965,800
1972	3,346,900
1973	4,215,700
1974	4,925,800
1975	4,388,400
1976	4,982,600
1977	5,268,800
1978	5,395,900
1979	5,062,200
1980	5,021,000
1981	4,768,700

Public use records reveal that some 90 percent of the recreation at Lake Barkley involves day use. The remaining 10 percent includes people camping or otherwise staying in the area overnight. Some users land at the airport conveniently located in Kentucky Dam Village State Park about five miles from the Barkley Dam. The project is strategically located near the center of the inland waterway system; boating by travelers on extended trips occurs on these waterways. Many of these travelers frequently stay in the Lake Barkley area for several days or weeks.

Public use for individual activities has grown at varied rates over the years. Hunting, boating, sightseeing, and fishing activity increased slowly at less than ten percent annually. Water skiing and swimming have major jumps in recent years from low bases in 1969 (Table 5.7). Camping and picnicking grew at 12% and 14% per year, respectively. Overall activity increased an average of 7.2% per year over the 1970-80 decade. Recent creel census figures collected by the Kentucky Department of Fish and Wildlife indicate that sport fishing success is improving significantly. Figures from both the Kentucky and the Tennessee sectors show a total of 1,745,282 fish weighing a total of 1,288,081 pounds were caught by sport fishers in Lake Barkley in 1978-79. In 1979-80, the creel census showed an increase to 2,523,595 fish weighing a total of 1,818,725 pounds.

Table 5.8 shows the use of selected public use areas; those included are high-use sites and large sites currently experiencing low levels of use.

Table 5.7

Activity Attendance At Lake Barkley

<u>Rank</u>	<u>Activity</u>	<u>Use</u> <u>(In Thousands</u> <u>of Recr. Days)</u>		<u>Annual Change</u> <u>%</u>
		<u>1969</u>	<u>- 1979</u>	
1	Sightseeing	1,222	1,917	+5.7
2	Fishing	955	1,660	+7.4
3	Camping	233	526	+12.6
4	Picnicking *	174	432	+14.8
5	Swimming (in 1970)	77	388	+41.8
6	Boating	332	378	+41.0
7	Skiing	7	99	+142.6
8	Hunting	53	56	+1.1 (variable)
9	Miscellaneous	22	605	
TOTAL	VISITORS **	2,932	5,062	+7.2

* Picnicking suffered an unusually sharp drop from 818.8 M visits in 1978, breaking a general upward trend. Until 1979, picnicking was consistently the third most popular activity.

** The total column indicates number of visitors only; many of the people engaged in more than one activity, so the sum of the activity figures exceeds the "total".

Source: U.S. Army Corps of Engineers, 1981, Public Visitation;

Nashville Districts Lakes, 1956-1980.

Table 5.8

Recreational Use of Selected
Corps of Engineers Properties (1981)

<u>Site</u>	<u>Recreation Days</u>	<u>Total Acres</u>	<u>Developed Acres</u>
McGregor Park	401,500	7	5
Kuttawa	228,600	60	40
Cadiz	185,800	75	25
Canal	416,800	140	70
Left Bank	136,100	100	25
Right Bank	126,400	120	10
Trice Landing	113,000	30	5
Dyer's Creek	100,400	80	10
Linton	84,500	56	5
Little River	77,600	31	15
Eddyville	70,300	15	10
Devil's Elbow	64,800	30	10
Eddy Creek	63,200	102	30
Guises Creek	58,300	15	10
Eureka	53,100	120	51
Grand Rivers	51,300	90	50
Hurricane Cr.	40,100	50	10
Bumpus Mills	25,800	255	10
Hickman Creek	27,800	248	50
Rivers Bend	13,200	120	15
Prizer Point	17,700	95	5
Blue Creek	9,500		42
Buzzard Rock	6,500		83
Donaldson Cr.	5,700		52

5.06.02 Methodology

Historic use figures from the Corps of Engineers, Kentucky State Parks, and Land Between the Lakes provided the basic factual data for the following section. Interviews with managers of public and private recreation facilities in the Lake Barkley area and adjoining regions added personal experience and expert opinion. The nationwide trends of recreation developments were also studied, including reports in the Nationwide Outdoor Recreation Plans and the National Symposium on Trends in Outdoor Recreation (1980).

Public use is a function of various factors. Population, distribution of age, disposable income of various age groups, cost of living, cost of transportation (primarily fuel cost), and promotion of recreational activities are probably the major factors influencing public use. The availability of recreation facilities for the public is an equally important factor (the supply side). Many of these variables can function interdependently of one another. This reduces the effectiveness of multiple regression techniques which are usually used for predictions. Several models were tested with the available data on Lake Barkley. The results were unsatisfactory, producing either theoretically unacceptable coefficient signs, very low correlation coefficients, insignificant coefficients, or powerless equations.

Therefore, for this plan, projections are based upon straight line extensions of past trends. Specifically, the average annual increase in use from 1969 to 1979 is assumed to be the continuing rate of growth into the future. It should be noted that this type of projection is valid for no more than five years beyond the most recent data year used. Predictions made beyond that time should be treated as only guesses; re-evaluation of trends after four or five years will be necessary. This is especially important if construction or management policy changes are being considered beyond the five year period.

The projections assume that year to year changes, such as the drops in 1980 and 1981, are temporary phenomena, not indicators of a change in long term use patterns. It is recognized that these estimates are probably high, at least for the near future, up to 1985. In the long run, however, they may serve as a moderate estimate of the general trend.

5.06.03 Projected Public Use

Since 1962, when the original Lake Barkley Master Plan was compiled, Americans have found this area to be immensely attractive. The concentrated federal, state, and private recreation facilities in the Lake Barkley-Kentucky Lake region comprise one of the outstanding recreation resource complexes in the nation. It is by no means fully developed at this time; considerable growth is possible and should be expected.

In 1966, when Corps of Engineers facilities were constructed at Lake Barkley, the original master plan suggested that picnicking was the major use to be served. Changes in use patterns have left the recreation facilities unused or used in ways different from those intended. A key principle in developing and working with this master plan is to anticipate continued changes in use patterns. A strategy for dealing with the changes and their unexpected consequences is necessary for effective execution of the plan.

Recreation use of Lake Barkley is expected to increase approximately 7.5 percent per year for the next five to ten years. The availability of public lands will limit opportunity for park development on the east side of the lake. However, where public land is limited, commercial campgrounds have in the past accommodated, and are expected to continue to accommodate, part of the demand for camping. Considering the results of

carrying capacity studies and the population and recreation use trends in the area, it is estimated the ultimate annual use of the project could level off at about eight million.

The long-range predictions offer a simple way to visualize possible growth in use. They should be relied upon only as a generalized idea of future use potential, assuming all present trends and use patterns remain the same.

(1) Effect of the Energy Crisis

If time proves that a turning point was reached in 1979, and future attendance continues to decline, then projected public use figures should be recalculated, based on the new direction of the trend. It could very well be that the gasoline price boost, which gained significant momentum in 1979, has changed traveling habits markedly and could render invalid the assumption that growth trends will continue as in the past. Even though gasoline prices have fallen slightly recently, any long-term effect of the so-called energy crisis cannot yet be stated. National recreational use patterns may be altered - people may participate in recreational activities closer to home or they may travel greater distances and stay longer; they may continue present patterns and spend less money in other discretionary activities; they may significantly curtail overnight recreational activities. Gasoline price reduction in early 1982 may signal a return to rising public use.

(2) Quantities

Use projections by individual activities and their totals per year are shown in Table 5.9. These figures suggest that there could be approximately 7.6 million visits to Lake Barkley by 1985. Beyond this, the straight line projection of visitation by each activity and all activities may be of little value beyond being a mathematical possibility. Each

activity is projected from a linear regression equation that measures past use and time, in the form: $V = -310.82 + 318.48 t$ where V = number visits and t = time in years.

(3) Market Area

The projections are based upon the assumption that people will either tend to come to the project from the same places or that new visitor origins will shift so that they compensate for any losses. Observations indicate more users in 1980 were from Kentucky than had previously been the case. Indiana and Illinois use has declined, apparently. It can be expected that visitation from Nashville will increase due to recently completed I-24. The Memphis population may become of greater significance at the completion of I-155. If population in the Evansville-Henderson area increases with industrial development, that area will become more important in the market for Lake Barkley recreational services.

Two other uncertainties are to be recognized and their evolution observed. If the price of gasoline continues to inhibit travel, as it apparently has done, a greater portion of the public use will be from destinations close to the project—Kentucky, Tennessee, and southern Indiana, Illinois. However, enterprising collective transportation companies may develop travel packages that could bring far-off visitors to the lake. Their needs for accommodations may be different from typical family groups. The second trend to watch is the management of Land Between the Lakes. Significant reductions or alterations of programs there could cause some of the users of that area to become users at Lake Barkley.

The following projections (Table 5.10) of public use indicate how various urban areas might contribute, based on past data. Total public use is attributed to major SMSAs

(Standard Metropolitan Statistical Areas) by using shareout coefficients. Share-out coefficients are the estimated percentages of visitor days originating from SMSAs. The report titled Potential Long-Range Development Options Lake Barkley, developed by Midwest Research Institute for the Corps of Engineers, gives percentage of public use days originating from major SMSAs. The report gives historical as well as estimated coefficients along with survey results, which again yield these coefficients. Estimated share-out coefficients are based on these data.

5.07 Facility Demands and Needs

5.07.01 General

Present Corps of Engineers policy does not provide for development of additional facilities, beyond those that already exist, on a project wide basis. It does allow for relocation of facilities on a site by site basis within the project to encourage greater efficiency in operations and maintenance. This can ultimately significantly improve the quality of the recreational facilities and experiences provided.

Table 5.9

Projected Participation in Activities at Lake Barkley, 1981-2000

<u>Year</u>	<u>Camping</u>	<u>Picnicking</u>	<u>Boating</u>	<u>Fishing</u>	<u>Hunting</u>	<u>Sight- seeing</u>	<u>Skiing</u>	<u>Swimming</u>	<u>Misc</u>	<u>TOTAL</u>
1981	720.6	593.1	414.5	2378.7	108.4	2844.2	109.7	389.0	204.1	6377.2
1982	756.7	622.8	435.2	2497.5	113.8	2986.3	115.2	408.4	214.3	6696.7
1983	792.6	652.3	455.9	2616.3	119.2	3128.3	120.6	427.9	224.5	7014.2
1984	828.6	681.9	476.6	2735.1	124.7	3270.3	126.1	447.3	234.6	7332.6
1985	864.6	711.6	497.3	2853.9	130.1	3412.4	131.6	466.7	244.8	7651.1
1986	900.6	741.2	518.0	2972.7	135.5	3554.4	137.1	486.1	255.0	7969.6
1987	936.6	770.8	538.7	3091.5	140.9	3696.5	142.6	505.6	265.2	8288.1
1988	972.5	800.4	559.4	3210.2	146.3	3838.5	148.0	525.0	275.4	8606.5
1989	1008.5	830.0	580.1	3329.0	151.7	3980.5	153.5	544.4	285.6	8925.0
1990	1044.5	859.6	600.8	3447.8	157.1	4122.6	159.0	563.9	295.8	9243.5
1995	1244.5	1007.7	704.3	4041.8	184.2	4832.8	186.4	661.0	346.7	10835.9
2000	1404.4	1155.8	807.8	4635.8	211.3	5543.0	213.8	758.1	397.7	12428.3

All figures are in thousands.
 Inasmuch as many of the people engaged in more than one activity,, the sum of the number reported for each activity exceed the figure shown in the total column which indicates use days only.

Table 5.10

Total Public Use Originating From Selected SMSA's*

<u>SMSA</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
Birmingham, AL	121.2	127.2	133.3	139.3	145.4	175.6	205.9	236.4
Champaign, IL	44.6	46.9	49.1	51.3	53.6	64.7	75.9	87.0
Chattanooga, TN	114.8	120.5	126.3	132.0	137.7	166.4	195.0	223.4
Chicago, IL	522.9	549.0	575.2	601.3	627.4	758.0	888.5	1019.4
Cincinnati, OH	178.6	187.5	196.4	205.3	214.2	258.8	303.4	348.0
Cleveland, OH	38.3	40.2	42.1	44.0	45.9	55.5	65.0	74.0
Columbus, OH	102.2	107.1	112.2	117.3	122.4	147.9	173.4	198.0
Dayton, OH	89.3	93.7	98.2	102.7	107.1	129.4	151.7	174.0
Detroit, MI	89.3	93.7	98.2	102.7	107.1	129.4	151.7	174.0
Evansville, IN	325.2	341.5	357.7	374.0	390.2	471.4	552.6	633.0
Gray-Hammond, IN	70.1	73.7	77.2	80.9	84.2	101.7	119.2	136.0
Houston, TX	38.3	40.2	42.1	44.0	45.9	55.5	65.0	74.0
Huntsville, AL	63.8	67.0	70.1	73.3	76.5	92.4	108.4	124.0
Indianapolis, IN	516.6	542.4	568.2	593.9	619.7	748.7	877.7	1006.0
Jackson, MS	121.2	127.7	133.3	139.3	145.4	175.6	205.9	236.0
Kansas City, KS	242.3	254.4	266.5	278.6	290.7	351.3	411.8	472.0
Knoxville, TN	70.1	73.7	77.2	80.7	84.2	101.7	119.2	136.0

Table 5.10

(continued)

SMSA	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
Lexington, KY	178.6	187.5	196.4	205.3	214.2	258.8	303.4	348.0
Little Rock, AK	70.1	73.7	77.2	80.7	84.2	101.7	119.2	136.0
Loiusville, KY	1084.1	1138.3	1192.4	1246.5	1300.7	1571.4	1842.1	2112.8
Memphis, TN	165.8	174.1	182.4	190.6	198.9	240.3	281.7	323.1
Milwaukee, WI	51.0	53.6	56.1	58.7	61.2	73.9	86.7	99.4
Minneapolis- St. Paul, MN	57.4	60.3	63.1	66.0	68.9	83.2	97.5	111.9
Montgomery, AL	31.9	33.5	35.1	36.7	38.3	46.2	54.2	62.1
Nashville, TN	676.0	709.7	743.5	777.3	811.0	979.8	1148.6	1317.4
Owensboro, KY	267.8	281.2	294.6	308.0	321.3	388.2	455.1	522.0
Philadelphia, PA	57.4	60.3	63.1	66.0	68.9	83.2	97.5	111.9
Pittsburgh, PA	44.6	46.9	49.1	51.3	53.6	64.7	75.9	87.0
St. Louis, MO	625.0	656.2	687.4	718.6	749.8	905.9	1061.9	1218.0
Springfield, IL	38.3	40.2	42.1	44.0	45.9	55.5	65.0	74.6
Terre Haute, IN	57.4	60.3	63.1	66.0	68.9	83.2	97.5	111.9
Other SMSA	223.2	234.3	245.5	256.6	267.8	323.5	379.3	435.0

* All figures in thousands

Due to projected increases in demand for facilities on Lake Barkley, the plan does indicate potentials for the expansion of facilities beyond those which presently exist at the project. Expansion is slow either within existing recreation areas or on recommended aquisition parcels adjacent to existing sites. It is anticipated that development of these facilities is dependent upon policy changes and/or the availability of cost-sharing partners.

In either case the Corps of Engineers cannot, and should not, provide all of the projected increases in facilities identified in the facilities demand analysis. The Corps' prime emphasis at this time is to reallocate facilities site by site to increase the quality of its recreation services by more efficient use of sites. This in itself can encourage increased public use and consequently more development of recreational facilities either by the Corps and a local sponsor or by concessionaires on Corps lands or on private lands adjacent to the Lake.

Although the Corps cannot at this time develop addition facilities, the demand analysis does indicate that the need for such facilities will increase. It is important that the Corp respond to these increases (i.e. appropriately relocate facilities) in order to effectively pursue adequate management programs. These programs should take into account development inside as well as outside the project boundaries that will have impact on the use of Lake Barkley.

Recommended future expansion of facilities on Corps of Engineers land and on aquisition parcels on Lake Barkley are not sufficient to meet the needs identified in the demand analysis. It is anticipated that the remainder of the needs will be met by other developments, both public (i.e. state parks) or private.

5.07.02 Estimating Activity Design Loads

To make useful comparisons between public use projections and facility capacities, conversion factors are necessary in order to account for peak loads and uneven temporal rates of participation. The equation used for this study is:

$$ADL = \frac{K \times AV \times P \times PD}{N \times T} \quad \text{where}$$

ADL = Activity Design Load.

K = % of total recreation activity days occurring in the recreation season.

AV = Annual Public Use estimate.

P = % of AV devoted to the activity being considered.

PD = Peak day load, as % of weekly public use.

N = Number of weeks in the recreation season.

T = Turnover rate of users in one day at one facility.

Each of the factors is analyzed below. It should be recognized that changes in these factors can have significant effects upon predicted needs for new or expanded facilities. They are based upon the best available data and experienced judgement. Their best use is as flexible and comparative guidelines.

The K factor, or percent of annual public use expected during the "recreation season," was estimated as follows: Analysis of attendance data for all activities by month revealed that the 18-week period from May 1 through Labor Day (essentially May-August) accounted for 57% of total use. Use by month is described in Table 5.11. A recreation activity-day, as used in defining "K", is one person participating in one activity during part of a day. This is measured by traffic counters and conversion

factors. The conversions are particular to each site, based upon activity participation data surveys that are calibrated with traffic counts. Figures are rounded to nearest thousand. Data are for the entire project, including some sites managed by agencies other than the COE.

Table 5.11
Lake Barkley Recreation Use, by Month, 1979

<u>Month</u>	<u>% of Annual Use</u>	<u>Season</u>
January	2.1	Winter/
February	2.4	
March	5.3	
April	9.5	Spring
May	12.4	
June	16.1	
July	15.8	Summer
August	12.6	
September	8.7	
October	7.6	Fall
November	4.5	
December	3.0	

Table 5.11 illustrates that nearly one-fourth of all use at Lake Barkley occurs in the four months of the fall, and nearly one-fifth occurs in the winter-spring months.

These data were used as a basis for estimating the K factors for each activity. There were no data found for activities by month from Land Between the Lakes, nearby Kentucky State Parks, or in the Kentucky & Tennessee SCORP studies. Therefore, the recommendations in Table 5.12 are based on roughly proportional estimates.

Table 5.12

K Factors (% of Visitation During Recreation Season).

<u>Activity</u>	<u>K Factors for</u> <u>Lake Barkley</u> <u>(18 weeks)</u>
Boating	.60
Camping	.70
Fishing	.50
Picnicking	.70
Swimming	.95
Sightseeing	.50
Other	.45

Annual public use estimate (AV) is projected over time as a simple linear trend extension. This assumes that use will continue to grow at the same rate as it has in the past. As stated earlier, such a prediction is risky beyond a five-year planning horizon, since it assumes that there will be no abrupt major population shifts in the market area. It also assumes that changes in competition and consumer preferences will more or less balance out over time.

The proportion of all recreation activity-days accounted for by one activity is the device used to project future participation (P) in that activity. Thus, if camping accounts for 10% of the total recreation activity days at Lake Barkley, it is assumed that this will continue to be the case in the future. The alternative to this assumption would be projection of a trend analysis for each activity. The former method was chosen for its simplicity and corresponding degree of reliability.

The percents of activity use figures in the Recreational Resource Management System's (RRMS) data for Lake Barkley were adjusted to total 100%. The resulting P factors are found in the appropriate column in Table 5.13.

Peak day load (PD) for Lake Barkley was calculated for each activity. The concept is similar to the "design day" approach used in SCORP planning, although the approach is slightly different. The key fact is that people tend to participate unevenly, so facilities must be provided to accommodate average peak day uses. Most agencies do not try to provide facilities to accommodate large holiday peaks, but focus on the normal peaks or weekend use.

Analysis of data from managers and actual use records in Indiana suggest that there is considerable variation in the peak pattern among different activities (Hatke, Knudson and Ziegler, 1977). These data were used to develop Table 5.13.

The number of weeks in the recreation season (N) was determined from the attendance patterns shown in Table 5.11. Each of the four months encompassing 18 weeks from May 1 through August (traditionally by Labor Day) have 12% or more of annual use.

The turnover rate (T) indicates the average number of times a facility is used per day by different parties. This figure is widely used in state planning, as well as in the Green River Lake Master Plan, 1980. The Indiana, Kentucky, Tennessee and other state recreation plans were compared to make recommendations recognizing the specific character of Lake Barkley. Because of the size of the lake, fishing and boating are relatively long term activities, suggesting that the parking spaces at ramps would be occupied for long periods. All activities were assigned a turnover rate of 2, except camping with a turnover rate of 1, and sightseeing with a rate of 5.

For Lake Barkley, the following factors were used for the equation

$$ADL = \frac{K \times AV \times P \times PD}{N \times T} \text{ as shown in Table 5.13.}$$

Table 5.13

Factor Values, Lake Barkley

<u>Activity</u>	<u>K</u>	<u>P</u>	<u>PD</u>	<u>T</u>
Boating	.60	.06	.35	2
Camping	.70	.09	.30	1
Fishing	.50	.27	.25	2
Picnicking	.70	.07	.50	2
Swimming	.95	.06	.25	2
Sightseeing	.50	.32	.35	5
Other (avg.)	.45	.06	.25	2

Table 5.14 presents the calculated Activity Design Loads for each activity, based upon the figures in Table 5.13 assuming as 18-week season.

Table 5.14
Activity Design Loads for Lake Barkley, 1981-2000*

<u>Year</u>	<u>AV</u>	<u>Boat</u>	<u>Camp</u>	<u>Fish</u>	<u>Picn</u>	<u>Swim</u>	<u>Sight</u>	<u>Other</u>
1981	6377.2	2.23	6.70	5.98	4.34	2.52	3.97	1.20
1982	6695.7	2.34	7.03	6.28	4.56	2.65	4.17	1.26
1983	7014.2	2.45	7.36	6.57	4.77	2.78	4.36	1.32
1984	7332.6	2.57	7.70	6.87	4.99	2.90	4.56	1.37
1985	7651.1	2.68	8.03	7.17	5.21	3.03	4.76	1.43
1990	9243.5	3.24	9.71	8.76	6.29	3.66	5.75	1.73
1995	10835.9	3.79	11.38	10.16	7.37	4.29	6.74	2.03
2000	12428.3	4.35	13.05	11.65	8.46	4.92	7.73	2.33

* In thousands of participants

5.07.03 Facility requirements

The Activity Design Load per facility is subsequently adjusted by the number of participants per facility and by any design assumptions to arrive at the total number of facilities required (see Table 5.14).

(1) Participants per Facility

This figure reflects the average number of individuals anticipated to participate in a single activity at any one time. The Activity Design Load is divided by the number of participants per facility to determine an estimated number of facilities required.

(2) Design Adjustment Factor

To account for any special design considerations such as the overlap in activity occasions and time-of-day use, etc., the estimated number of facilities is adjusted for certain activities. The adjustments are based upon the following assumptions:

- 1 — Picknicking: 50 percent of all picnickers do not use picnic tables.
- 2 — Boating: It is estimated 1/3 of all pleasure boats entering Lake Barkley will originate at other than COE launch ramps.
- 3 — Fishing: The percentage of activity occasion for fishing is estimated to be 85 percent from a boat, 15 percent from the bank.
- 4 — Sightseeing: Only 50 percent of sightseers require facilities. The remainder are considered "drive-through" sightseers.

The following example indicates how the facility requirements were calculated:

To determine the facility requirements for pleasure in boating 1985, using the equation

$$ADL = \frac{K \times AV \times P \times PD}{N \times T}$$

$$ADL = \frac{.6 \times 7651.1 \times .06 \times .35}{18 \times 2} = \frac{96.4}{36} = 2.68 \text{ ADL}$$

The Facility Requirement is calculated:

$$\text{Facility Requirement} = \frac{\text{ADL} \times \text{Design Adjustment Factor}}{\text{Number of Participants}}$$

or in the example, $\frac{2.68 \times 7}{3} = .6253$. The Annual Public Use estimate (AV) is expressed in thousands (Table 5.14), therefore the Facility Requirement for pleasure boating is 625 parking spaces for vehicles with trailers in 1985.

Table 5.15 indicates the number of facilities required for each major activity, based upon the projected design loads. These figures indicate short range (1985) and long range (2000) total facilities that will be utilized if available. For example, by 1985, there should be about 2,000 campsites, facilities for 625 pleasure boats, plus 2,026 fishing boats, 868 picnic tables, etc.



Boat fishing, Lake Barkley Zone 1

Table 5.15

Facility Requirements for Lake Barkley for 1985 and 2000

<u>Activity</u>	<u>Facilities</u>	<u>Activity Design Load</u>		<u>Participants per Facility</u>	<u>Design Adjustment Factor</u>	<u>Total Number of Facilities Required</u>	
		<u>1985</u>	<u>2000</u>			<u>1985</u>	<u>2000</u>
Pleasure Boating	Lanes, Parking Spaces (vehicle w/ trailer)	2.68	4.35	3	.70	21 (lanes) 625 (parking)	34 (lanes) 1015 (parking)
Fishing (boat)	Lanes Parking Spaces (vehicles w/ trailer)	7.17	11.65	3	.85	51 (lanes) 2026 (parking)	83 (lanes) 3301 (parking)
Camping	Campsites	8.03	13.05	4	1.0	2001	3263
Picknicking	Tables Parking Spaces	5.21	8.46	3	.50 (tables) .75 (parking)	868 (tables) 1303 (parking)	1410 (tables) 2115 (parking)
Swimming	Parking Spaces	3.03	4.92	3	1.0	1010	1640
Sightseeing	Parking Spaces	4.76	7.73	3	.50	793	1288

Notes to design Adjustment Factors:

1. Tables are required for only 50% of all picknickers.
2. Three parking spaces are provided for every 2 tables.
3. 30% of pleasure boats are considered to originate at other than COE ramps.
4. Fishing is considered to be: 85% from a boat, 15% from the bank.
5. Facilities are required for only 50% of all sightseers.

5.07.04 Facility Distribution

Presently, the majority of intensive recreational development, both private and public, occurs north of Cumberland River mile 68, Lake Development Zone 1. The largest percentage of future development to meet projected facilities demands will also occur in this zone where the lake is most conducive to this kind of development. The greatest amount of use generated by visitors other than local residents occurs in this area; the lake is large enough to accomodate heavier use, and the road system allows easy access to this zone of the lake from major regional population centers.

Consideration was given to activity distribution on a project wide basis and on an individual site by site basis, first with regard to relocation of existing facilities and then with regard to new facilities in response to future needs. This project wide consideration took into account the need to consolidate facilities at Lake Barkley by reducing or eliminating facilities at sites where public use is extremely low, and by relocating facilities to sites where visitation is increasing. This consideration will improve recreation experiences on Lake Barkley through more efficient operations and maintenance.

Distribution of facilities on a site by site basis was based on a variety of site constraints and opportunities, including natural characteristics (i.e., soils, slope, vegetation, etc.), unique visual qualities, public use data, and accessibility. The major determinants for expansion were the natural suitabilities which dictated the amount of developable land available for future facilities. In two cases aquisition was recommended adjacent to existing recreation areas to help provide added opportunities for expansion.

One aspect of development to be considered during any expansion is that of changing needs and preference over time. Lungren (1976) has proposed three elements of a strategy to deal with change: 1) monitor and evaluate use and users to detect changing patterns of activities and preferences; 2) diversify facilities thereby recognizing the diverse tastes and preferences among people; and 3) design flexibility into facilities so they can be readily and inexpensively modified, expanded, reduced, or eliminated to meet changing preferences.



Typical camping site, Lake Barkley

LAKE BARKLEY MASTER PLAN

CHAPTER 6 - FACILITY LOAD AND DESIGN CRITERIA

6.01 General

Design and implementation of recreational facilities at Lake Barkley will follow general guidelines stated in EM 1110-2-400 Recreation Planning and Design Criteria, ER 1110-2-400 Design of Recreation Sites, and ER 1120-2-400 Recreation Resources Planning.

The implementation of recreational facilities on a project the scale of Barkley will most certainly require variations, adaptations, and exceptions to standard guidelines in order to respond adequately to specific site situations and constraints. These variations, however, should be based on the principals and intent established in the original criteria. The following general design criteria statements are provided to aid in the efficient operation and maintenance of the recreation lands at Lake Barkley.

6.02 Siting

In general, the siting of any facility or structure should create a harmonious balance between the facility or structure itself and the existing natural environment.

The siting of the structures and the facilities should: minimize disturbance (cut and fill) to the natural slope of the land; protect native vegetation; allow views and vistas as appropriate to and from facilities; provide easy access for handicapped persons; respond accordingly to constraints, i.e., high water table, flood zones, etc.

6.03 Water Systems

Throughout the project area there are essentially four methods of obtaining satisfactory potable water for the recreational sites. These alternatives are: 1) connection with adjacent utility district water systems, 2) provision of drilled water wells, 3) utilization of the lake as a raw water source and provision of a water treatment plant, and 4) cisterns.

The construction of water treatment plants is not recommended in any of the sites due to the high cost of construction, maintenance, and operation which cannot be justified by the number of visitations to the sites. Cisterns are not considered viable due to the problems involved in providing sufficient capacity during the peak use, which incidentally coincides with the dry season. Treatment plants and cisterns should be considered only as an alternative if other sources are not practical. Wherever possible, connection to an adjacent utility district or municipal distribution system should be made.

Throughout the project area, the water supply systems are generally considered adequate to meet the present needs. Needs resulting from proposed relocation of facilities and growth demand, excluding improvements planned by concessionaries, and the estimated cost for providing those needs is provided in Chapter 7. Expansion is required to adequately serve the relocated facilities and improvements at the following recreation areas: Grand Rivers, Eureka, Canal, Kuttawa, Buzzard Rock, Devil's Elbow, Donelson Creek, Linton, Cannon Springs, Prizer Point, Bumpus Mills, Hickman Creek, Dryden Creek, and Dry Creek.

6.04 Wastewater Systems

Alternatives for wastewater treatment and disposal include: 1) connection to a municipal or utility district sanitary sewerage system, 2) septic tank and subsurface disposal field, 3) septic tank and sand filter, 4) sewage treatment plant with discharge to surface waters, 5) a sewage treatment plant followed by land application through spray irrigation, 6) septic tank with sand filter and discharge to surface waters, 7) chemical toilet systems involving pump and haul of waste materials, and, 8) recirculating water systems which reduce hydraulic loading on an associated subsurface disposal field.

Within the project area, experience has shown that the septic tank sand filter arrangements have been extremely satisfactory; however, they have not been hydraulically loaded to the extent where recurrent discharge has occurred. Throughout the project area, wherever experience and specific engineering investigation indicates, the septic tank sand filter arrangement should be replaced with septic and subsurface disposal fields. The preference for septic tank and disposal field arrangements is due to the reduction of maintenance and operation cost, elimination of discharge monitoring and reporting requirements, and the elimination of the requirement for a National Pollutant Discharge Elimination System Permit from the State and/or the U.S.E.P.A.

The existing facilities in this project area are adequate to meet the present demands the system is experiencing. Proposed relocation of facilities would involve the provision of additional sewerage collection systems and/or waste treatment systems.

The following recreation areas would require additional wastewater system improvements due to facilities relocation and growth: Grand Rivers, Eureka, Canal, Kuttawa, Buzzard Rock, Devil's Elbow, Donelson Creek, Linton, Cannon Springs, Prizer Point, Hickman Creek, Dyrden Creek, and Dry Creek.

6.05 Electrical Distribution

Electrical power to all of the sites throughout the project area will be supplied by local power companies. Wherever practical or required by policy, the primary and secondary electrical service, including the telephone service cables, should be direct burial cable or in underground conduit. Electrical equipment, such as transformers, pull boxes, etc., located in the recreational areas should be constructed so as to preserve the aesthetics of the landscape. When overhead lines are required, special care should be taken in order to minimize disturbance or appearance of disturbance in the project area.

6.06 Solid Waste Disposal Systems

Solid waste management throughout the project area has been satisfactorily executed through the use of private hauling contractors and municipal collection services, where available. The use of private contractors has not only been satisfactory in keeping the trash receptacles in the areas clean but also in keeping the individual areas picked-up.

Ultimate disposal of solid waste collected in the project area will be allowed only at landfill sites which are approved by State Agencies and/or the local health departments, depending on appropriate jurisdiction. Since the individual recreation areas and other use areas are widely scattered, it will be practical to utilize many individual contractors for this effort. It is recognized that there will be recurrent problems of unauthorized dumping on federal lands around Barkley Lake. The management plan of Lake Barkley requires constant monitoring of this problem, with removal and clean-up operations as necessary, and the dissemination of information to the general public on the desirability of maintaining the public lands and water in a clean state and on penalties for dumping on public lands.

6.07 Bridges and Drainage Structures

The bridges and drainage structures throughout the project area, generally, are adequately sized, based on current hydrological standards. As additional land areas develop, stormwater management systems should be provided for protecting roads, parking areas, trails, buildings, and other physical facilities within the project area and adjacent to the project area from the potential adverse impacts of stormwater runoff. Adjunct to the planning or relocation of recreation facilities, the ultimate land usage should be considered. Improvements should be planned in such a manner as to reduce the velocity of overland flow and allow maximum stormwater infiltration into the ground and to preserve and utilize natural streams and detention basins.

6.08 Roads

For park and recreational developments, natural elements are in most cases the basis for determining project success or failure. The planning of roads therefore should reflect, accentuate, and respect, as much as possible, the natural physiographic character of the surrounding environment while responding to the degree of access required. Disturbance such as cut and fill should be minimized whenever possible, and should exhibit a natural (versus engineered) appearance upon completion, when possible, through manipulation of outcrops, mass plantings, and degree of slope.

The elimination of long tangents and the provision for changes in elevation will significantly reduce monotony and will provide interest to the visitor.

Essentially, roads should be designed to maintain a continuing sense of intimacy with, and respect for, the surrounding countryside.

Whenever possible, overlooks and scenic areas should be established. Speed reduction should be indicated when approaching and transversing these zones.

Three types of roads are planned at the project:

Type A road will have a 20-foot wide bituminous concrete surface with 2-foot grassed shoulders and will be used for primary access. Grade should not exceed 10%.

Type B road will have an 18-foot wide bituminous surface with 2-foot grassed shoulders. This road type will be used where two way circulation is needed in camp areas. Grade should not exceed 10%.

Type C road will have a 12-foot wide surface with 2-foot wide shoulders and will facilitate one way traffic in camp areas. Grade should not exceed 12%.

Type D service road, where required for vehicles to reach recreation facilities, should be 10-foot in width with a 2-foot shoulder, and may be paved or gravel. These roads should have a 12% maximum grade.

6.09 Parking

Parking areas have the potential to most obviously display the presence of visitors in a park or recreational area. Proper design is mandatory in order to significantly reduce this impact.

Parking that does not occur on flat areas can be arranged on the basis of topographic changes or terraced on to two or more levels to reduce cut and fill and subsequently, visual impact.

Reduced visibility of parking areas provides significant relief to the public and helps retain existing landscape character. This can be accomplished with the use of plant materials, either existing or new, located in planting beds in and around the parking areas. These buffer areas need not be hard edged dividers, but can be cut outs, carefully designed in the initial planning.

Parking areas and pedestrian accesses to and from heavily used facilities should have a bituminous surface and should meet design standards for proper drainage. Surface drainage should be used where possible to encourage return of stormwater to the ground as quickly as possible, while eliminating concentrations of water to reduce erosion potentials.

Gravel or stabilized turf parking areas will be provided for boat launching areas or other facilities that receive minimal or seasonal use.

6.10 Launching Ramps

Launch ramps at Lake Barkley should comply with criteria outlined in EM 1110-2-400/A4-A6. The lanes should be 12 to 14 feet wide, and should extend from above the five year frequency flood pool to a minimum of four feet below the minimum pool.

6.11 Docks, Piers, and Mooring Facilities

Fishing piers at vacation areas should be located in quiet shaded coves, where possible, and should be accessible from an established trail. Piers should be designed to remain operational during high or low waters and should be accessible to handicapped persons.

6.12 Picnic Units

The locating of picnic units should be done so that each unit is level and well drained, placed near existing or proposed trees for shade, and placed within reasonable walking distance of a restroom facility. They should be spaced according to density of vegetation to provide privacy, and should take advantage of views, where possible. Picnic units should be accessible to the public via road, path, lawn area, etc., with selected sites accessible to handicapped persons.

Individual picnic units should include a gravel pad, picnic table, trash receptacle, and cooking apparatus.

6.13 Camp Units

Due to the intense use generated by campgrounds and their subsequent potentially destructive impact on natural areas, initial sitings and field observation during early planning are critical factors to their successful implementation.

Campgrounds in wooded areas need greater attention with regard to individual site selection than do those in open spaces. Pulloffs and parking spurs should be located far enough from existing trees to allow vehicular maneuverability without damage to trees.

Camp pads should be constructed at a slope of 2%, thus allowing necessary cross drainage. The surface of the pad should be compacted limestone screenings within a 6" x 8" pressure (Wolmanized) treated wood edge.

Modern camp units should be spaced at least 57' on center, with final spacing established on the basis of site conditions, i.e. slope, vegetation, etc.

Gravel spurs will be provided at all drive-in campsites, and paved parking will be provided at trail heads of walk-in camp areas.

<u>Modern Camp Unit</u> (recommended in fee areas only)	.compactd limestone screenings at impact area .ground level fire ring .picnic table .electrical and water hookups .showers and waterborne toilets .dump station and wash houses
<u>Intermediate Camp Unit/Walk-in Unit/ Group Camp</u>	.same as above; water and electrical hookups optional .waterborne or chemical vault toilet
<u>Primitive Camp Unit</u>	.cleared level area for tent adjacent to established trail and fire ring .access to chemical vault toilet or vault toilet

6.14 Special Camp Units

The terrain at several recreational areas on Lake Barkley make conventional campground construction impractical. In these areas where camping demand is expected to rise, special camp unit construction is recommended. These special camp units should be constructed of heavy timber (platform), up to 12 units/acre and have access to camping support facilities described above.

Steep slopes are typically the factor preventing conventional campsite construction. However, by using simple post and beam framing techniques, a hillside platform that causes minimal site disturbance can be erected. Even in heavily wooded areas, overall camper density can be increased. Platform campsites are modular and stacked along slopes. By constructing these "hillside platforms", existing vegetation and drainage patterns remain virtually undisturbed. Platforms should be constructed of pressure treated timbers.

The hillside camp units are especially suited for large groups. The units provide a camping experience otherwise unattainable on rugged terrain. Orientation of the unit should be along slopes with eastern and southern exposure to obtain early morning sun.

The recommended maximum density for hillside camp units is 12 units/acre, but may vary with site conditions.

In areas where the terrain is less severe yet prohibitive of conventional sites, raised camp pads are recommended. These can be constructed by filling and levelling the desired pad location and using short retaining walls constructed from pressure treated timbers to contain the pad. This method can render useable areas otherwise considered borderline because of slope.

6.15 Swimming Beaches

6.15.01 General

Swimming beach location and feasibility should be based on topographical characteristics, slope gradient, soil structure and composition, wind and wave action,

water quality and circulation, and the effect of pool draindown. The beach should be located to provide maximum safety from boats, fuel spillage, etc. All trees and stumps should be removed from in the beach area, and underwater holes should be filled.

Trees may remain near sunbathing areas adjacent to the beach proper.

Generally, where topography will allow, the beach and underwater swimming area should be graded at a constant slope (5% maximum).

Sand or turf may be used, though turf should not be considered where erosion or inundation may cause deterioration. 50 square feet per person of beach area should be provided. 30 square feet per person of swimming area should be available within the marked swimming area.

The swim area proper should be outlined with orange buoys connected to the beach with cable. The cable should also be supported by flotation material in accord with American Red Cross recommendations. All participants swim at their own risks.

Warning buoys to boaters should be placed 100 to 300 feet beyond the swim area buoys at 200 feet intervals.

6.15.02 Types of Beaches

(1) informal — to be located near camping or picnic areas where these activities will generate the majority of users.

Buoys should be placed to delineate swimming limits and keep boats out.

(2) developed — to be located where general use by the public in combination with campers and picnickers warrants greater facility development. Developed beaches should include a bathhouse/changehouse structure, with showers, water closets, and urinals. Concession services are optional. Again, buoys should be used to delineate swimming limits.

Parking should be provided within 500 feet of the beach. Size of parking area should be determined from the beach capacity and adjacent uses. Developed beaches may be supervised or unsupervised.

6.16 Park Structures

All structures to be constructed on COE lands should respect a consistent architectural theme that provides visitors with an aesthetic visual experience in harmony with the rural and rustic character of earlier buildings indigenous to the *Lake Barkley area*. Such design should take into consideration cost of construction and maintenance over the life of the structure, construction methods which minimize impact on the environment during construction, durability and energy conservation. Designs should encourage visitors' respect through proper siting, access, equipping, and maintenance. Complicated mechanical systems should be avoided due to probability of failure and difficulty of maintenance.

Specific recommendations include:

- 1 — Avoid flat roofs, as they leak and are inconsistent with the desired character; five-V metal, cedar, and asphalt shingle roofs are suggested.
- 2 — Glass and skylights should be avoided in most situations due to vandalism, natural ventilation through openings, with or without louvers and/or heavy galvanized metal screening is recommended.

3 — Exposed, well finished concrete floors are appropriate to most facilities; color may be added with stain applied during finishing.

4 — Exterior materials should be wood and stone; brick and concrete block are inappropriate to the area's desired character.

5 — Interior wall and ceiling finishes should be wood, plywood, or concrete block; drywall is highly susceptible to damage.

6 — Paint and other finishes that must be reapplied periodically should be avoided.

7 — "Faddish" building materials and designs "date" facilities and, as such, should also be avoided.

The Corps should review and approve all designs, including size and building plans, landscaping plans, and utility layouts where cost-sharing partners or leases are involved. Standards should be developed and provided to potential concessionaires and partners prior to entering into an agreement.

6.17 Playgrounds

Pressure treated timber play structures are preferable to metal apparatus. Metal structures are more likely to cause injuries due to sharp edges, bolts, nuts, etc., are more conspicuous in the landscape, and require frequent maintenance. Play structures should be anchored with concrete and set in defined areas contained by pressure treated timber edge. All play areas will be graded to drain with a minimum slope of 2% and have a contained sand play surface.

Playgrounds located within campgrounds must not be adjacent to roadways or horse trails and must be visible from camp pads. Play areas for small children should be adequately separated from multi-purpose courts used by older children.

6.18 Trails

Trails will be used within individual recreation areas to provide direct access to various activities, facilities, and unique features, i.e. overlooks, outcrops, etc. adjacent to Corp property.

Major hiking trails between recreational sites must be clearly designated. Where trails are adjacent to roads or bridges, provisions should be made to insure hikers' safety.

The locating of all hiking trails within or between recreational areas should be done in the field by experienced personnel to insure selection of safe and interesting routes. Selection of the trail route should respond to the following design criteria:

- 1 - minimize steep grades (10% slope or less) unless steps are to be constructed;
- 2 - control potential erosion;
- 3 - provide a variety of visual sequences and experiences;
- 4 - clear low hanging branches to a minimum height of 7';
- 5 - maintain 5' minimum side clearance, 3' for steep climbs;

6 - provide surface material 18" minimum width of crushed stone, packed gravel, or mineral soil to a depth of 4 inches where trail is adjacent to campgrounds or other intensely used facilities;

7 - provide wood chips, shredded bark, or natural soil and rocks on surface of trail in moderately used to lightly used areas;

8 - provide appropriate cross pitch, water bars, culverts, and dips in trails to deter erosion on steeper slopes.

9 - maintain correlation between route and existing topography for entire length of trail;

10 - clearly mark all trails beginning and end.

Equestrian trails must be selectively designated and clearly marked to insure rider and animal safety. Equestrian trails may be designated on or along vehicular access routes for short distances. These instances should be clearly marked. Horses should have the right-of-way on interior park roads.

Equestrian trails should be located on firm, well drained soils. Where trails must traverse seasonally wet areas, sufficient gravel or crushed stone should be used to facilitate rapid drainage. All branches should be removed to a minimum height of 10' above trails.

Equestrian trails should be wide enough to allow the passage of two riders at the narrowest point. Periodic open spaces are recommended along the trails, particularly when they are greater than three miles in length.

Horse tie-ups should be constructed at locations adjacent to destination points, but should not obstruct the trail.

6.19 Grading and Landscaping

Grading should be held to a minimum, generally, as changes in the natural topography potentially diminish the recreation experience. Where grading is necessary, a maximum slope of 3:1 should be maintained and sown with grass or sodded. All newly graded areas should be smoothly blended with existing topography.

In areas where slopes in excess of 3:1 are unavoidable, mechanical stabilization measures such as crib walls or wooden retaining walls should be considered, especially when unstable soils are involved.

Landscaping should be done essentially to provide visual screens and buffers around undesirable elements, to reduce maintenance of grassed areas with heavy use, and to return a natural appearance to disturbed areas. All plant materials should be healthy native species with proven hardiness.

6.20 Signs

Generally, signs should be used only when necessary. They should be rustic in character, informative, and inexpensive to construct. Signs may be used to give the visitor information or direction, at entrances to use areas and interest points, or to provide interpretive information.

Symbols are recommended in place of text where possible; however, both should be consistent with standard Corps graphic systems. All signs should be in accord with the OCE Sign Manual.

Roadside signs should be located 6 feet from the road shoulder or 12 feet from the edge of the pavement. Other signs such as at trail heads or specific interest points should be located out of the direct path of pedestrians or service vehicles yet clearly visible. Interpretive signs that carry exhibits or other interchangeable information should be enclosed in water tight/weather resistant plexiglass compartments. All signs should be vandal resistant.

6.21 Interpretation

Interpretation is discussed here in terms of a variety of approaches — personal presentations, self-guiding trails, brochures, booklets, self-guiding auto tours, signs, and exhibits.

Currently only two methods of direct contact with Lake Barkley visitors exist. They are:

- 1 - through the visitor center at Barkley Dam (plus the two visitor information centers at the dam site),
- 2 - through interpreters who occasionally bring interpretive programs to the major campgrounds.

One of the objectives stated in the original Lake Barkley Master Plan was to "provide interpretive and educational experiences commensurate with the resources". This remains a valid objective which has yet to be fully realized. The interpretive

opportunities of this area are significant yet do not approach their potential, in spite of the fact that there are four major federal agencies and at least three major state recreation-related agencies in the region.

At Lake Barkley, interpretation should be developed to offer:

- 1 - programs and personal contact in major campgrounds;
- 2 - an auto tour along the east side of the lake;
- 3 - new interpretive trails;
- 4 - expanded exhibits in the visitor center, covering a broader subject range.

In 1980 the Corp of Engineers* described four motivations for increased efforts in visitor perception and interpretive services. They are:

- 1 - legislative mandates,
- 2 - tradition of conservation agencies,
- 3 - usefulness as a management tool, and
- 4 - executive emphasis.

*Stidham, David. 1980. Four Reason for Corps Involvement in Interpretation. Reconotes. Vol. R-80-2. pp. 4-5.

This document noted that "the Corps land and water base provides a tremendous opportunity to demonstrate to America's increasingly urban public proper, effective resource management."

Interpretation is a key method for providing an integrated image of the facilities and services of the Lake Barkley area. Unless there is a strong interpretive program, very few individuals can comprehend the extent and the values of this large and diverse project area. A well integrated interpretive effort is the best method of indicating that Lake Barkley is more than just another place to fish; it is a place which visitors can return for a variety of activities.

Based on analysis of the interpretive facilities and programs of all agencies in the area, the topics that most appropriately lend themselves to interpretation are:

1 - Water — transportation on rivers and lakes, including locks;

- watershed effects and management;
- reservoirs;
- aquatic ecology and limnology.

2 - Wildlife — fish, terrestrial mammals, birds, reptiles, amphibians, and especially migratory waterfowl.

3 - Forests — past and present importance to the economy;

- economically and ecologically important trees;
- medicinal and edible plants;
- ecology of old-growth forest, and of reverting old fields.

4 - Civil War History — displayed by the National Park Service, but virtually ignored elsewhere.

5 - Economic History — focus on three major products with important roots here:

- tobacco — Clarksville is a major market;
- corn whiskey — the area saw considerable activity during prohibition;
- iron and steel industry — the "Bessemer" process was invented here by Kelly before it was discovered by Bessemer. This was a vital industry here for 80 years.

The Corps of Engineers has an opportunity to take a leading role in interpretation, and to be the agency that offers the visitor the opportunity to experience and understand the natural historical process, give places special qualities, and make recreational experiences more meaningful.

The following techniques of interpretation are recommended. The ranger staff should be given responsibilities for interpretation and personnel should be trained in interpretive philosophy and techniques. Although recent operations and maintenance budgets have been reduced, it is also recommended that the interpretive budget and assignments be increased as possible.

1 — Auto Tour to explore the wealth of culturally significant sites that exist on or near Lake Barkley. These, in combination with the area's complex road system, offer the opportunity for the public to explore diverse rural conditions, significant sites, and recreational points. An interpretive auto tour, highlighting these amenities, could serve

to connect and integrate a variety of tourist attractions and give a unified identity to the Lake Barkley project area.

2 — Self-guiding trails within public use properties, extending 100 yards to one mile in length. To reduce vandalism, numbered posts and booklets may be used (examples—Bumpus Mills, Canal, Cannon Springs).

3 — Campground interpretation of a personal nature, especially during the summer season. It is suggested that campground interpretation be given in combination with recreation leadership and skills training. Special forms could include evening talks, "star walks," daytime demonstrations, and interpreted hikes.

4 — Orientation Brochure and Map, rewritten with greater emphasis on recreation, should focus on what the visitor can do and what is significant about the area; the current map is good and the graphics very readable.

5 — Visitor Centers reevaluated according to visitor needs. Preliminary suggestions are to continue the powerhouse center, improve content at the Left Bank, and include interpretation of the locks. The long-range desirability of locating a small, rustic interpretive center at Cannon Springs should also be evaluated.

6 — Ecological Study Area/Bird Sanctuary with trails, bird blinds, hedges, and other enhancements to improve nature study and environmental education.

Appendix A, Lake Barkley Master Plan, identifies and specifically locates interpretive opportunities, recommends the scope and nature of the program and facilities, and includes a phasing program for development.

6.22 Navigation Aids and Waterway Safety

Lake Barkley, to a large extent, particularly in Zones 2 and 3 as discussed in this Master Plan, consists of the Cumberland River channel. Navigational tows, primarily in the form of commercial barge traffic, travel the river very frequently, day and night, during all seasons. Conflicts occur between pleasure boaters and barge traffic in Zone 3 and occasionally near the canal that connects Lake Barkley and Kentucky Lake.

Navigation channels, swimming areas, danger zones, and hazardous areas must be properly marked with directional and information buoys, markers, signs, or barricades which conform to the Uniform State Waterway Marking System and the Manual on Uniform Traffic Control Devices for Streets and Highways. Such devices are to be placed and maintained to insure the public adequately against hazards. Restricted and unsafe boating areas are to be properly marked with signs, buoys, booms, or other markers. Signal beacons are to be installed as needed. Project roads and boat launching ramps are to be adequately signed, marked, or barricaded for proper use and protection of the visiting public.

Water safety education programs should be encouraged at the local level and where possible near sites which generate a significant number of complaints and accidents. Increased law enforcement is recommended. The states of Kentucky and Tennessee should designate and support within their respective jurisdictions, a single agency as responsible for law enforcement on land and water.

6.23 Safety Controls

6.23.01 Fire Protection

The two objectives of fire protection are fire prevention and fire suppression. An agreement with responsible state or local agencies for mutual assistance could greatly reduce project equipment and personnel needs.

An important element of fire prevention is enhancing public awareness of the serious consequences of fire and the need to avoid carelessness. This objective can be accomplished through interpretive displays, signing, and visitor orientation. Although most people are aware of the potential danger of fire, reminders are justified. Certain seasons occasionally bring on weather conditions which make the forest particularly vulnerable. Public awareness efforts during these periods should be accelerated.

Good surveillance and communications are also vital in preventing the spread of wildfire. Rangers should strictly enforce regulations dealing with campfires and grills. Maintenance personnel should be aware of acceptable and unacceptable methods of using fire in carrying out their work and of potential hazards in dealing with flammable substances.

Fire suppression efforts will likely involve interagency cooperation. Corps efforts should be devoted to training maintenance personnel in firefighting techniques and to providing basic equipment to handle an anticipated emergency in the forest, grasslands, or building complexes. Agreements should be firmly established with local or state authorities for assistance with major fire emergencies. The U.S. Coast Guard may be able to participate in emergencies involving fires aboard boats or barges.

While forest and grass fires are usually suppressed by fire breaks or the dropping of chemical retardants, building fires are generally suppressed with water. Since fire plugs appear only to be feasible in selected locations, lake water is proposed as a possible source. Portable pumps with the capability of pumping water directly from the lake should be maintained as needed. Access points are proposed in the vicinity of each major building complex for use in case of emergency. A pumper-tank truck offers similar capabilities.

6.23.02 Visitor Safety and Control

Basic safety considerations are incorporated in the arrangement and design of the proposed recreational areas. Examples include roadway and intersection alignments, visitor control facilities, beaches, boat launches, and special design provisions for the handicapped. On the other hand, safety management is largely related to operations and will demand ongoing attention.

Local law enforcement agencies can assist with safety in the Lake Barkley area through the enforcement of speed limits, and through visibility, thus discouraging vandalism and unruly behavior. The Corps should assist these local agencies by contracting for the policing of Corps-managed recreational areas.

Use of firearms should be strictly prohibited on project land and water except in clearly-designated hunting areas.

All roads, trails, parking areas, traffic intersections, and water-access areas will be designed as necessary to meet the other Federal agencies' safety standards as set forth by the U.S. Army Corps of Engineers, other federal agencies involved in the management

of Lake Barkley, and state and local regulating authorities. All developed recreation areas should be provided with lighting and signs as necessary to allow the recreational visitor to be aware of any potential hazards that are present. Bulletin boards at the sites should be utilized for dissemination of safety-related information and the conditions of use.

Safety equipment will continue to be available for any emergency, both in the operational areas and in the vehicles of the staff responsible for the management of Lake Barkley. The staff will provide assistance whenever necessary, and will coordinate information with local authorities so as to make available any emergency medical services as efficiently as possible.

Safety on the project lands will be dependent upon recognition of hazards and their elimination. Accordingly, safety inspections of sites must be included in the work plans for the staff, and instructions to correct all safety hazards promptly should be issued to all personnel.

6.24 Provisions for the Handicapped and Elderly

All facilities on the Lake Barkley lands should incorporate, to the fullest extent practical, measures to reduce barriers to the handicapped. Passed in 1968, Public Law 90-480 stipulates that all buildings and facilities intended for public use and financed in whole or in part by a Federal grant or loan are to be designed and constructed to assure accessibility and usability by physically handicapped people.

Design considerations are as follows:

1 — At least one approach route to buildings should be negotiable by handicapped persons.

2 — Where ramps are used, their gradient should not exceed 8.33 percent or one foot in 12, and they should be finished with a nonslip surface.

3 — Gradients for walkways generally should not exceed 5 percent.

4 — Major attractions should be readily accessible by automobile. Signing should designate handicapped parking spaces, and curb cuts should be provided for wheelchairs.

5 — Door widths in buildings should be a minimum of 32 inches, with thresholds flush with the floor.

6 — Rest rooms should have at least one stall for use by physically handicapped persons. It should be 3 feet wide by 5 feet deep and have a door 32 inches wide which swings out rather than in. Handrails should be installed parallel to and 33 inches above the floor.

7 — Water fountains should have up-front spouts and hand-operated controls mounted about 36 inches high.

LAKE BARKLEY MASTER PLAN

CHAPTER 7 - PLAN OF DEVELOPMENT

7.01 Lake Development Concept

Recommended modifications and proposed future uses within existing sites at Lake Barkley and suggested acquisition lands for future development are related to a broad concept based on the general overall physiographic characteristics of the lake, including excessive linearity, shallow water, and areas of restricted width. This concept approach for Lake Barkley indicates three general physiographic zones and predicts development capabilities and directions for compatible recreational uses (see Plate #3). Zone 1 is characterized by wider and deeper waters, providing a strong atmosphere of a lake and is, in general, particularly suited to intensive recreational development. Zone 2 primarily consists of somewhat narrower and shallower waters, with occasional exposed lake bottoms. The Barkley Waterfowl Management Area and Cross Creeks National Wildlife Refuge are located in this lake zone. Zone 2 is considered most compatible with resource recreational development. Zone 3 maintains the character of a river, with the lake essentially confined within its original channel, and is suitable for only very limited recreational development opportunities.

Recreational and operational uses were determined to be compatible with a particular zone when they were compatible with the physical characteristics and the intended development character of that zone. Sensitivity to individual site constraints and influences, market directions, user demands, and ease of maintenance and operation were also determining factors in the development plans.

7.01.01 Development Zone 1

Intensive lake recreation, i.e. pleasure boating, water skiing, etc., are considered appropriate uses on deeper water with ample surface area for maneuverability. These characteristics are common to Zone 1, the northern end of the lake from Barkley Dam south to mile marker 68. The more highly developed sites are presently located here. The visual characteristics of Lake Barkley, as a substantially large body of water, also increase the recreational desirability of this portion of the lake. Future development here is directed towards bolstering existing sites by providing plans that concentrate activities into fewer, and more intensely used parcels. Expansion of two sites through acquisition is also proposed in this zone to provide greater opportunities for increased concentration of recreational development. This development concept for Zone 1 also takes advantage of the existing interstate, state, and local road network which could provide adequate access for the projected increased number of users. Refer to Table 7.1 for site-zone designation.

7.01.02 Development Zone 2

The central portion of Lake Barkley, Zone 2, from mile marker 68 south to mile marker 102 is narrower than Zone 1 and characterized by exposed river bottoms and low wet areas adjacent to the main channel that periodically flood. Present activities levels of use and decreased accessibility in this section of the lake reflect a character suitable to resource-oriented recreational development. Activities include fishing, hunting, and waterfowl management. These uses compliment the Barkley Waterfowl Management Area and the Cross Creeks National Wildlife Refuge located in this zone. Future recreational facility development is planned to accentuate these resource aspects and to allow opportunities for a broader appreciation and user participation through development of

hiking trails, interpretive areas, primitive and developed camping areas, and improved fishing facilities. (see Table 7.1)

7.01.03 Development Zone 3

The physiographic character of the remainder of the lake, Zone 3, from mile marker 102 south to Cheatham Dam and Lock, is entirely different. The lake is narrow, lying essentially within the original river channel. Generally, only flowage easements were acquired in this area. Accessibility to much of this portion of the lake is extremely limited. This zone is not conducive to intensive recreational water usage, i.e. pleasure boating or large-scale waterfowl management. Recreational activity on this portion occurs primarily near Clarksville and New Providence. Facilities are heavily used and conflicts exist between recreation and commercial barge traffic due to the narrowness of the lake. An additional ramp is planned for this portion of the lake, not to provide substantial increases in recreational boat activity, but to help alleviate congestion at other facilities. (See Table 7.1)

Table 7.1

Distribution of Sites, by Zone

<u>Site #</u>	<u>Site Name</u>	<u>Plate #</u>	<u>Zone #</u>
99	Barkley Dam Site	-	1
101	Tailwater Left Bank Recreation Area	5	1
102	Tailwater Right Bank Recreation Area	5	1
103	Grand Rivers Recreation Area (includes Port Ken-Bar)	6	1
104	Eureka Recreation Area	7	1
105	Canal Camping Area	8,22	1
108	Boyds Landing Recreation Area	7	1
113	Buzzard Rock Recreation Area (includes Leisure Cruise Marina)	9	1
115	Old Kuttawa Recreation Area (includes Kuttawa Marina)	9	1
116	Eddyville Recreation Area	10	1
121	Eddy Creek Recreation Area (includes Eddy Creek Port)	11	1
123	Dryden Creek Launching Area (proposed recreation area)	11,22	1
124	Hurricane Creek Camping Area	10	1
125	Rockcastle Recreation Area	-	1
129	Little River Recreation Area	12	1
130	Cadiz Recreation Area	12	1
131	Lake Barkley State Resort Park	-	1

Table 7.1

(continued)

<u>Site #</u>	<u>Site Name</u>	<u>Plate #</u>	<u>Zone #</u>
134	Devil's Elbow Recreation Area	12	1
180	Kentucky State Park, Lyon Co.. KY	-	1
205	Canal Overlook	-	1
213	Poplar Creek Launching Area	-	1
220	Coleman Bridge Launching Area	-	1
227	Goose Hollow (Proposed)	-	1
228	Rivers End Launching Area	-	1
236	Calhoun Launching Area	-	1
263	Blue Springs	-	1
264	Canton Heights, No. 1	-	1
265	Canton Heights, No. 3	-	1
323	Cannon Springs Launching Area	19	1
324	Port Prizer Point Marina and Campground	10	1
701	Nickell Branch Informal Use Area	-	1
702	Demumbers Bay Informal Use Area	-	1
703	Kuttawa Landing Informal Use Area	-	1
704	Ramsey Overlook Informal Use Area	-	1
705	Eddyville Ferry Informal Use Area	-	1
706	Cravens Bay Informal Use Area	-	1
707	Environmental Education Center	-	1
708	Taylor Bay Informal Use Area	-	1
709	Camp Energy Group Camp	-	1

Table 7.1
(continued)

<u>Site #</u>	<u>Site Name</u>	<u>Plate #</u>	<u>Zone #</u>
710	BSA High Adventure Informal Use Area	-	1
711	Devils Elbow Informal Use Area	-	1
712	Bacon Creek Informal Use Area	-	1
713	Wranglers Camp	-	1
98	Dover Sub Base	-	2
139	Linton Recreation Area	13	2
141	Dry Creek (Proposed)	23	2
145	Bumpus Mills Recreation Area (includes Bumpus Mills Marina)	20	2
149	Blue Creek Recreation Area	14	2
151	Dyers Creek Recreation Area	15	2
152	Hickman Creek Launching Area (future recreation area)	21	2
153	Dover Recreation Park	15	2
166	Dover Picnic Area	-	2
237	Donaldson Creek Launching Area	13	2
243	Tobacco Port Launching Area	-	2
245	Saline Creek Launching Area	-	2
601	Barkley Waterfowl Management Area (TWRA)	-	2
602	Islands Wildlife Management Area (KDFWR)	-	2
603	Levee Waterfowl Refuge Area (KDFWR)	-	2
715	Brandon Springs Group Camp	-	2
716	Gatlin Point Informal Use Area	-	2
717	Cross Creek National Wildlife Refuge	-	2

Table 7.1
(continued)

<u>Site #</u>	<u>Site Name</u>	<u>Plate #</u>	<u>Zone #</u>
718	Fort Donelson National Military Park	-	2
719	Energy Dam Informal Use Area	-	2
158	Guises Creek Recreation Area	17	3
163	Trices Landing Park	-	3
164	McGregor Park	-	3
255	Rivers Bend Launching Area	16	3
262	Smiths Branch Launching Area	18	3
401	McAdoo Creek (Proposed)	-	3
501	Yacht Harbor Marina	-	3
502	Clarksville Sportsman Club	-	3
503	Red River Marina	-	3
504	Clarksville Fairground Park	-	3
505	Montgomery Co. Conservation Club	-	3
-	Cheatham Dam, Left and Right Bank Recreation Areas	-	3

7.02 General Summary of Sites

Of the original 74 sites proposed for public access in the original master plan, 24 were never developed; 4 sites initially developed by the Corps will be permanently closed; 8 have been absorbed by LBL and developed as public use areas by TVA; and 38 have been developed on Corps lands and are to remain open for public use. Two of the 24 sites never developed are proposed, in this master plan, as future sites; the remaining 22 will be deleted as designated sites. Additional land acquisition is proposed adjacent to two of the developed sites.

Twenty-four additional existing or future sites not listed in the original master plan are designated in this master plan update. Thirteen of these are public use areas on the lake developed by other agencies (TVA, NPS, Lyon Co.) since the original master plan was approved. Four are wildlife areas, and five are developments on easement land and contribute to the recreational resources of the project. Two are proposed as new sites for future development.

Table 7.2 lists sites which have been permanently closed by the Corps due to lack of use or to specific site problems, and those never developed, or transferred or leased to other agencies. Those sites are deleted from this Master Plan Update.

The 73 existing and proposed designated recreation sites and two administrative sites on Lake Barkley vary in size up to 1700 acres (Lake Barkley State Resort Park). Two sites, Canal and Canal Overlook, were combined as one site in the original master plan. Table 7.3 indicates present status and designation.

Table 7.2

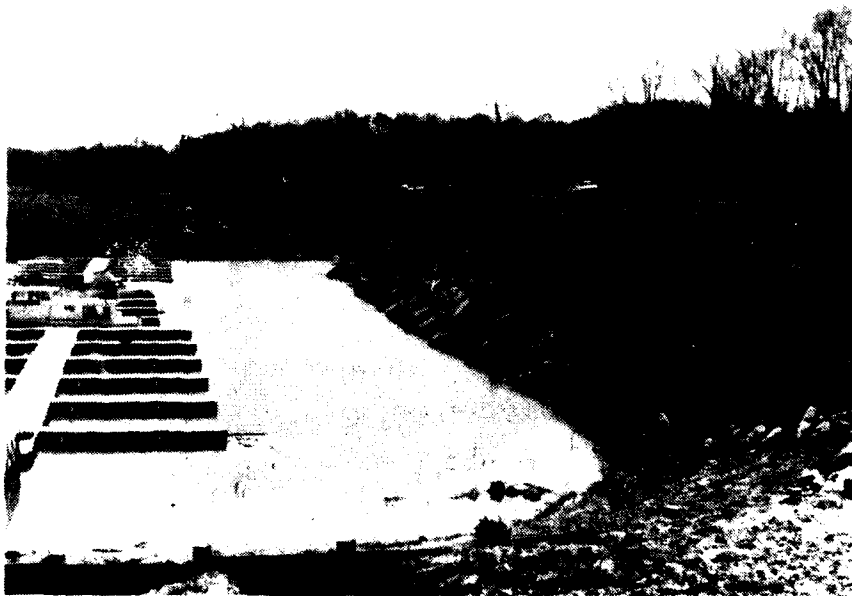
Status of Sites to be Deleted, Lake Barkley Master Plan Update

<u>1964 Master Plan</u>		
<u>Site #</u>	<u>Site Name</u>	<u>Action</u>
Site #6	Chestnut Oak	Never developed.
Site #7	Willow Creek	Never developed; transferred to TVA
Site #10	Demumbers Creek	Never developed; transferred to TVA
Site #11	Big Horse Ford	Never developed; transferred to TVA
Site #12	Carmack Creek	Never developed; transferred to TVA
Site #17	Clay Creek	Never developed; transferred to TVA
Site #18	Pilfer Creek	Never developed.
Site #19	Hallaway Hill	Developed by Corps; permanently closed
Site #32	Hopson Creek	Never developed.
Site #38	Laurel Creek	Never developed; transferred to TVA
Site #40	State Line	Never developed; transferred to TVA
Site #42	Crockett Creek	Never developed; transferred to TVA
Site #46	Gatlin Shoal	Never developed.
Site #48	Bear Creek	Never developed; transferred to TVA
Site #50	Mud Creek	Never developed; licensed to TWRA
Site #54	North Cross Creek	Never developed; transferred to USFWS
Site #56	Wells Creek	Never developed.
Site #57	Cumberland City	Never developed; transferred to TVA for Cumberland City Steam Plant
Site #59	Yellow Creek	Never developed.
Site #60	Lock C	Developed by Corps; permanently closed
Site #61	Hematite	Developed by Corps; permanently closed.
Site #65	Lock B	Never developed.

Table 7.2

(continued)

<u>1964 Master Plan</u> <u>Site #</u>	<u>Site Name</u>	<u>Action</u>
Site #66	Muddy Branch	Never developed.
Site #67	Mayberry Branch	Developed by Corps; permanently closed.
Site #68	Hagewood Ferry	Never developed.
Site #69	Weakley Creek	Never developed.



Yacht Harbor Marina
Montgomery Co., Tn.

Table 7.3

Existing and Proposed Sites, Status and Designation

<u>New Site #</u>	<u>1964 Master Plan Site #</u>	<u>Site Name</u>	<u>Zone #</u>
1 — Administrative Sites:			
98	—	Dover Sub Base	2
99	—	Barkley Dam Site	1
2 — Recreation sites with any combination of existing or proposed facilities in excess of launching ramp and parking:			
101	1	Tailwater Left Bank Recreation Area	1
102	2	Tailwater Right Bank Recreation Area	1
103	3	Grand Rivers Recreation Area	1
104	4	Eureka Recreation Area	1
105	5	Canal Camping Area (includes Port Ken-Bar)	1
108	8	Boyds Landing Recreation Area	1
113	13A	Buzzard Rock Recreation Area (includes Leisure Cruise Marina)	1
115	15	Old Kuttawa Recreation Area (includes Kuttawa Marina)	1
116	16	Eddyville Recreation Area	1
121	21	Eddy Creek Recreation Area (includes Eddy Creek Port)	1
123	23	Dryden Creek Launching Area (proposed recreation area)	1
124	24	Hurricane Creek Camping Area	1
125	25	Rockcastle Recreation Area	1

Table 7.3

(continued)

<u>New Site #</u>	<u>1964 Master Plan Site #</u>	<u>Site Name</u>	<u>Zone #</u>
129	29	Little River Recreation Area	1
130	30	Cadiz Recreation Area	1
131	31	Lake Barkley State Resort Park	1
134	34	Devils Elbow Recreation Area	1
139	39	Linton Recreation Area	2
141	41	Dry Creek (future)	2
145	45A	Bumpus Mills Recreation Area (includes Bumpus Mills Marina)	2
149	49	Blue Creek Recreation Area	2
151	51	Dyers Creek Recreation Area	2
152	52A	Hickman Creek Launching Area (proposed recreation area)	2
153	53	Dover Recreation Park	2
158	58	Guises Creek Recreation Area	2
163	63	Trice Landing Park	2
164	64	McGregor Park	3
166	52	Dover Picnic Area	2
180		KY State Park - Lyon Co. (proposed)	1

Table 7.3

(continued)

<u>New Site #</u>	<u>1964 Master Plan Site #</u>	<u>Site Name</u>	<u>Zone #</u>
3 — Parking and Launching Facilities only, or vehicular access to government lands only with no boat access:			
205	Part of 5	Canal Overlook	1
213	13	Poplar Creek Launching Area	1
220	20	Coleman Bridge Launching Area	1
227	27	Goose Hollow (Proposed)	1
228	28	Rivers End Launching Area	1
236	26	Calhoun Hill Launching Area	1
237	37	Donaldson Creek Launching Area	2
243	43	Tobaccoport Launching Area	2
245	45	Saline Creek Launching Area	2
255	55	Rivers Bend Launching Area	3
262	62	Smiths Branch Launching Area	3
263	—	Blue Springs Launching Area	1
264	—	Canton Heights No. 1 Launching Area	1
265	—	Canton Heights No. 3 Launching Area	1

Table 7.3
(continued)

<u>New Site #</u>	<u>1964 Master Plan Site #</u>	<u>Site Name</u>	<u>Zone #</u>
4 — Commercial Concession Sites (commercial concessions are also included in some of recreation sites listed above):			
323	23A	Cannon Springs Launching Area (proposed concession area)	1
324	24A	Port Prizer Point Marina and Campground	1
5 — Quasi-public sites:			
401	—	McAdoo Creek (proposed)	3
6 — Commercial and non-federal recreation areas located on easement land:			
501	—	Yacht Harbor Marina	3
502	—	Clarksville Sportsman Club	3
503	—	Red River Marina	3
504	—	Clarksville Fairground Park	3
505	—	Montgomery County Conservation Club	3
7 — Misc. (Designated historic sites, natural area, environmental study areas, wildlife management areas):			
601	—	Barkley Waterfowl Management Area (TWRA)	2
602	—	Islands Wildlife Management Area (KDFWR)	2
603	—	Levee Waterfowl Refuge Area (KDFWR)	2

Table 7.3

(continued)

<u>New Site No.</u>	<u>1964 Master Plan Site No.</u>	<u>Site Name</u>	<u>Zone #</u>
8 — Sites administered by another Federal agency:			
701	—	Nickell Branch Informal Use Area	1
702	9	Demumbers Bay Informal Use Area	1
703	14	Kuttawa Landing Informal Use Area	1
704	--	Ramsey Overlook Informal Use Area	1
705	—	Eddyville Ferry Informal Use Area	1
706	22	Cravens Bay Informal Area	1
707	—	Environmental Education Center	1
708	26	Taylor Bay Informal Use Area	1
709	—	Camp Energy Group Camp	1
710	—	BSA High Adventure Informal Use Area	1
711	33	Devils Elbow Informal Use Area	1
712	35	Bacon Creek Informal Use Area	1
713	—	Wranglers Camp	1
714	44	Neville Bay Informal Use Area	2
715	47	Brandon Springs Group Camp	2
716	—	Gatlin Point Informal Use Area	2
717	—	Cross Creek National Wildlife Refuge	2
718	—	Fort Donelson National Military Park	2
719	—	Energy Dam Informal Use Area	2

7.03 General Summary of Consolidations and Closures

The ultimate results of the proposed consolidation discussed in this Master Plan update will be closing four areas permanently, reducing facilities to launching only at six sites, and partially closing two additional sites. Table 7.4 contains a summary of these sites by name. The facilities existing at these sites will be relocated into sites where the needs are the greatest and where operational efficiency will be measurably increased with a reduction in operating costs. Public protection is currently a concern at certain sites on Lake Barkley. Emphasis will be placed on expanding campgrounds with relocated camping and/or picnic units to a level where the collection of user fees is more cost-efficient.

Table 7.4

Recommended Consolidations and Closings

1. Recreation areas closed permanently.
 - a. Hallaway Hill
 - b. Lock C
 - c. Hematite
 - d. Mayberry Branch
2. Reduced to launching only (facilities closed or relocated).
 - a. Cannon Springs
 - b. Blue Creek
 - c. Rivers Bend
 - d. Hickman Creed
 - e. Smith Branch
 - f. Little River
 - g. Rockcastle
3. Partially closed (Picnic area consolidated).
 - a. Guises Creek
 - b. Linton

7.04 Land Use Plan

7.04.01 Operational Lands

Administrative facilities are located on lands at the damsite and the Dover Sub Base. These include offices, service areas, and visitor facilities. These are the only lands allocated primarily to operations.

Lyon County Port consists of land allocated to commercial port development and industrial use. Although this land was actually transferred to the Lyon County Port Authority, its use is limited by the Corps to port and industrial purposes. (See 7.07)

Other shoreline lands are necessary for the flood control aspects of the project. These lands are generally allocated however, to forest reserve, fish and wildlife, and recreation.

7.04.02 Forest Reserve Lands

Forest Reserve Lands generally include lands within the narrow band between elevations 359 and 367, thereby constituting minimum acquisition. Inaccessible and/or blocked-out areas are also included in this classification. These lands support extensive wildlife populations and are important to Lake Barkley's visual and water quality and its environs. In some cases they are also used for dispersed recreation such as bank fishing, primitive camping, picnicking, and hiking.

7.04.03 Natural Areas

Natural areas include any locations where critical habitat or threatened or endangered species have been identified. Points of historic or archaeological significance would also be included in this category. Currently no project lands are allocated to this classification.

7.04.04 Fish and Wildlife Management Lands

Fish and wildlife management lands include all lands outgranted for active fish and wildlife management programs including those managed by the U.S. Fish and Wildlife Service, the Kentucky Department of Fish and Wildlife Service, and the Tennessee Wildlife Resources Agency. (See 7.08)

7.04.05 Recreation-Low Density

Lands which are used for primitive recreation such as camping and hiking trails are designated recreation-low density. Although these areas have developed facilities, they are very austere—gravel parking, chemical toilets, and fire rings for camping.

7.04.06 Recreation-High Density

Recreation-high density includes all lands that are extensively developed or proposed for extensive recreation use. This classification includes areas operated by the Corps as well as those operated by other public bodies for general recreation. Commercial concessions are also included in this classification.

7.05 Water Use Plan

Unlimited boating is generally allowed on all open, deep portions of the lake. There is no limitation as to the size or type of boats allowed in those areas. Most of the Lake Development Zone 1 is in this category. The navigation channel and larger, deeper embayments in Zones 2 and 3 are also classified for unlimited boating. Idle or no wake speeds are required for safety on certain water areas. These include areas near docks, shallow areas, restricted coves, and around fish attractors. These areas are primarily located in Zone 2 of the project but could be designated anywhere safety indicates the need. Refer to specific area designations on the Land and Water Use Plans (Plates #3-3.6).

7.06 Site-Specific Development

Site-specific development plans were prepared from a synthesis of design criteria outlined in Chapter VI: individual site influences and constraints, market projections, and user and facility demand analyses.

The plans are also related to the lake concept development zones outlined in 7.01 and reflect an extensive consolidation of recreational development in Zone 1 (the northern portion of the lake). Although conceptual in nature, the plans are specific in the numbers of recreational facilities and are consistent with the projected facility needs.

The conceptual plans indicate existing facilities, near future, and future development. Removal and relocation of facilities are also indicated to consolidate development, which will help facilitate efficient operation and maintenance.

Acquisition is proposed adjacent to two existing recreation areas in response to projected increases in user demand. These sites were reviewed with regard to their ability to support facilities complementary to those existing or planned on the adjacent sites. It is anticipated that future site development on these parcels will occur only after all other planned facilities or changes to existing Corps sites have been implemented, and/or funds and partners for non-federal cost sharing become available.

Following is the developement plan for existing and proposed recreation areas on Lake Barkley.

7.06.01 Existing Public Use Areas on Corps Lands

Site #101 - Tailwater Left Bank Recreation Area (Plate #5) Zone 1

The Tailwater Left Bank Recreation Area contains 100 acres, 25 of which are developed. It lies immediately below the Barkley Dam on the West bank of the Cumberland River, and is bordered on the north by U. S. Highway 62-641.

The Tailwater Left Bank Recreation Area is essentially flat river bottomland that contains a single significant promontory and ridgeline along its westernmost boundary. It is immediately adjacent to the navigation lock and has direct access from U. S. Highway 62-641. The Visitor Center is located on the promotory and affords excellent views of the dam and lock and surrounding grounds.

Summary of Facilities, Tailwater Left Bank Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	2			2
PARKING STALLS				
Car-paved (each)	270			270
Car/trailer-paved (each)	10			10
LAUNCH RAMP				
1 lane (each)	1			1
TRAILS				
Interpretive (miles)		.50		.50
SANITARY FACILITIES				
Water borne restroom (each)	2			2

The site presently has moderate use by day-use sightseers. Very little fishing occurs along this bank of the tailwaters. The site includes the Lake Barkley Resource Manager's office in the Visitor Center Building. Access to the damsite (site #99), navigation lock, and maintenance base is from the main road through the Tailwater Left Bank Recreation Area. Two pulloff parking areas, one with a restroom, exist, and stairs adjacent to each parking area allow access to the water's edge for limited bank fishing.

Planned improvements for the Tailwater Left Bank Recreation Area include the addition of mass plantings along the primary entry road and around existing parking areas to provide appropriate screening and visual interest. An interpretive trail, approximately 1/2 miles in length, will be developed in association with the visitor center to provide an additional dimension to the present center's interpretive facilities. Entry identification along U. S. Highway 62-641 will be revised in order to make it more effectively visible and to provide clear direction to the visitor center.

Site #102 - Tailwater Right Bank Recreation Area (Plate #5) Zone 1

The Tailwater Right Bank Recreation Area contains 120 acres of flat bottom land. Ten acres are presently developed. The area is on the east bank of the Cumberland River and bounded on the north by U. S. Highway 62-641. The Power Plant Information Center is located here.

Summary of Facilities, Tailwater Right Bank Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	2			2
PARKING STALLS				
Car - Paved (each)	200			200
Car/trailer - paved (each)	46			46
LAUNCH RAMP				
1 lane (each)	1			1
SANITARY				
Water-borne restroom (each)	1			1
FISHING PIER (each)		1		1

The site is used by day-use sightseers, tourists, and fishermen, with tailwater fishing the most frequent activity. Existing facilities reflect this usage and include launching, parking, and concrete stairs that provide access down to the minimum tailwater elevation.

To accommodate the large number of tailwater fishers and to promote safety in the area directly below the dam structure, a fishing pier, accessible to the handicapped and designed to respect the fluctuating level of the tailwaters, is to be constructed in the near future.

As at the Tailwater Left Bank Recreation Area, mass plantings will be used to screen parking areas and add to the visual character of the site, which is readily visible from U. S. Highway 62-641. Plantings will be restricted from overhead transmission line easements.

Site #103 Grand Rivers Recreation Area (Plate #6) Zone 1

Grand Rivers Recreation Area is located just south of the dam on the west bank of Lake Barkley. It is situated just outside the community of Grand Rivers, off the Trace, on hilly terrain. Grand Rivers Recreation Area serves destination and overnight campers. A large number of the users are local residents.

The developed wooded recreation area comprises 26 acres and includes a camping area, a picnic area, and a play area. The remaining 32 developed acres are leased to a commercial concessionaire for the operation of Port Ken-Bar Marina. A launching area is located adjacent to the commercial marina.

A new beach facility with parking, a bathhouse, and a launching area along with a new picnic area with shelters will be added at Grand Rivers. Additional walk-in campsites will be developed in the central portion of the property where existing tree cover is generous and slopes prohibit the development of conventional campsite construction. An additional bathhouse and small pull-off parking areas will serve campers in this area.

Hiking trails will provide access for campers wishing to visit the beach and picnic areas.

Due to carrying capacity limitation, facility expansion, beyond that outlined above, is not recommended.

Summary of Facilities, Grand Rivers Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	2			2
PARKING STALLS				
Car-paved (each)	206		65	271
Car/trailer paved (each)	30			30
LAUNCH RAMP				
1 lane (each)	1	1		2
BEACH (each)				
		1		1
Bathhouse (each)		1		1
CAMPING				
Intermediate (spaces)	15			15
Walk-in (spaces)	29	15		44
Entrance station (each)			1	1
PICNICKING				
Sites (each)	9	15		24
Shelters (each)	1	2		3
SANITARY				
Water-borne restroom (each)	1	1	1	3
Water-borne restroom with Showers (each)	1			1
Dumpstation (each)	1			1
PLAY AREA (each)	1			1
TRAILS				
Hiking (miles)		1	.5	1.5

Site #104 Eureka Recreation Area (Plate #7) Zone 1

The 120 acre Eureka Recreation Area lies above and directly south of the dam and is accessible via Eureka Ferry County Road. The site is a combination of wooded, hilly to gently rolling land and low, semi-wet lands that are generally unsuitable for intensive recreational development. The existing campsites, picnic sites, and launching ramps are utilized by campers and local residents.

The Hammack-Baxter and Brandon soils cover much of the Eureka site. They are rated moderate limitations for septic tanks/fields, campgrounds, and picnic areas, and slight limitations for paths and trails. The most limiting site factor is slope. Development in the Baxter-Hammack and Newark soils in the northern half of the property is to be avoided, except for trails.

Camping will be expanded into a wooded tract that is moderately sloping and currently accessible from an internal road. Additional space for campsites will be provided by removing one of two large parking areas and closing the *adjoining* boat ramp. The one remaining ramp will be sufficient to serve the boating needs.

A small beach area will be constructed adjacent to the existing campground near the terminus of the old county road. Beach design, such as a concrete beach, in this location must respond to crosslake wave action, which can potentially accelerate shoreline erosion and deterioration. Alternative beach locations are not satisfactory due to inaccessibility and excessively shallow water.



Bath house, EUREKA RECREATION AREA



Campsite, EUREKA RECREATION AREA

Summary of Facilities, Eureka Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1		.5	1.5
PARKING STALLS				
Car-Paved (each)	101		(60)R*	41
Car/Trailer-Paved (each)	30			30
LAUNCH RAMP				
1 lane (each)	2		(1)R*	1
Courtesy Dock (each)	1			1
BEACH (each)		1		1
CAMPING				
Intermediate (spaces)	35	6	34	75
Entrance Station (each)		1		1
PICNICKING				
Sites (each)	6	(6)R*		0
Shelters (each)	1			1
SANITARY				
Waterborne restroom with Showers (each)	1		1	2
Dumpstation (each)			1	1
PLAY AREA (each)	1			1
TRAILS				
Equestrian (miles)			.25	.25

* R - Relocate/Remove

An existing shelterhouse will remain in the campground expansion area to be used as an activity center. The picnic sites will be converted to campsites.

Eureka will be one of three anchor sites for an equestrian trail. The trail extends east to Buzzard Rock and south to Boyds Landing Recreation Areas via an abandoned railroad bed and connecting shoreline.

Site #105 - Canal Camping Area (Plate #8) Zone 1

Located immediately adjacent to the Barkley navigation canal that connects Lake Barkley and Kentucky Lake at the northern end of the two lakes, Canal Camping Area is the most extensive and one of the most intensively used camping facilities currently operated by the Corps of Engineers on Lake Barkley.

The combined complementary features of gently rolling terrain and tree cover interspersed with open areas, coupled with direct access from The Trace, a major north/south vacation route, make Canal Camping Area attractive for overnight and destination camping. The Canal Overlook (site #205) is located directly west of the Canal Camping Area across the Trace and contains parking and restroom facilities.

In order to provide an increase in the variety of experiences for the user, and to upgrade the status of Canal Camping Area for improved destination camping, a beach and bathhouse facility are to be located in a natural embayment on the south shore of the recreation area. An existing small beach on the northern shore has a less desirable solar orientation than the proposed site. That, coupled with projected future increases in user numbers, suggests that the continued use of the existing beach is limited. The new beach facility will be accessible from the existing and the planned new campsites via hiking

trails that follow the lakeshore and will also connect to a new activity area and overlook point. The new overlook point will significantly enhance the hiking and overall site experience.

The activity area is situated in the northern portion of the recreation area on a former car/trailer parking area and adjacent wooded knoll. The parking and launching area ramp is to be closed due to low use. A second parking and launching area at the end of the access road will remain open for use. Within the activity area is a shelter, restroom, play area, and multipurpose court.

One group camp area is designated for the future. Mass planting for future shade and buffering will supplement existing tree growth in areas designated for future camping.

Summary of Facilities, Canal Camping Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	2	.75	1	3.75
PARKING STALLS				
Car-paved (each)	79	56		124
Car/Trailer - Paved (each)	50	(25)R*		25
LAUNCH RAMP				
1 lane (each)	2	(1)R*		1
Courtesy dock (each)	1			1
Fishing pier (each)			2	2

Summary of Facilities, Canal Camping Area: continued

<u>Facility</u>	<u>Near Existing</u>	<u>Future</u>	<u>Future</u>	<u>Total</u>
BEACH				
Beach area (each)	1	(1)R*		1
Bathhouse (each)		1		1
CAMPING				
Modern (each)	100	15	39	154
Hillside (each)			25	25
Group (each)			15	30
Entrance station	1			1
SANITARY				
Waterborne restroom (each)		1		1
Restroom with showers (each)	2		2	5
Dumpstation (each)	1			1
ACTIVITY AREA				
Activity Shelters (each)			1	1
			1	2
PLAY AREA	1	1	1	3
TRAILS				
Hiking (miles)		1.25		1.25
ORV (miles)	1	(1)R*		0
AMPHITHEATRE	1			1
OTHER				
Overlook		1		1
Multipurpose court (each)	1	(1)R*		0

* R - Relocate/remove

Acquisition that would allow expansion of the Canal Camping Area for future development is recommended for a parcel of land situated between the existing Canal Camping Area and Grand Rivers Recreation Area. The parcel is presently virtually undeveloped with the Illinois Central Railroad forming a boundary to the northwest. It will expand Canal Camping Area along the northern property line by approximately 35 acres. Physiographically, the expansion area contains more numerous ridge lines and steeper slopes than either of the existing Canal or Grand Rivers areas and is also more heavily wooded.

The acquisition of this parcel will greatly expand the recreational experiences available in this area, and provide greater service and variety to the increases in user demand. The consolidation of facilities development created by this acquisition site will also increase management and maintenance efficiency.

The physical characteristics of the acquisition site and its planned facilities of walk-in and group camping, nature study and interpretive areas, trails, etc., compliment and support the existing and planned experiences and facilities at Canal Camping and Grand Rivers Recreation Areas.



New bath house design, nearing completion
of construction (BOYD'S LANDING)

Site #108 - Boyds Landing Recreation Area (Plate #7) Zone 1

Boyds Landing Recreation Area is 50 acres of wooded slopes interspersed with open land in an area of high scenic quality. 25 acres are presently developed. Although it is not immediately accessible from any of the surrounding major highways, this site maintains a relatively high visitation level of campers. Facilities include camping sites, launch ramp, picnic sites, and parking. The campsites are served by a waterborne restroom with showers which was built within the last two years.

Boyds Landing Recreation Area is located in Zone 1 of the Lake Barkley Development Concept where visitation has historically been greatest and where the majority of recreation development is planned in order to satisfy projected increases in user demands.

A one quarter mile equestrian trail loop links Boyds Landing with Eureka Recreation Area and Buzzard Rock Recreation Area.

Although Boyds Landing will remain open, no future recreational development is planned because of steep and erodable slopes. Boyd's Landing is a popular camping area, and will be more efficient to operate and maintain in the future, as it is located in Zone 1 and will be close to the majority of planned development.

Summary of Facilities, Boyds Landing Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING STALLS				
Car-paved (each)	23			23
Car/trailer - paved (each)	20			20
LAUNCH RAMP				
1 lane (each)	1			1
CAMPING				
Intermediate (each)	20			20
SANITARY				
Restrooms with Showers (each)	1			1
TRAILS				
Equestrian (miles)		.25		.25



Camp Site (BOYD'S LANDING)

Site #213 - Poplar Creek Launching Area (no plate) Zone 1

The Poplar Creek Launching Area, a 10 acre launching- only site, of which one acre is developed, is located adjacent to U. S. Highway 62-641. It is utilized most heavily by local fishermen.

The only planned development here is to provide access for the handicapped to the fishing pier.

Summary of Facilities, Poplar Creek Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING STALLS				
Car/trailer - Paved (each)	10			10
LAUNCH RAMP				
1 lane (each)	1			1
Courtesy dock (each)	1			1
Fishing pier (each)	1			1



View of Old Kuttawa
from Beach Area Parking

Site #115 - Old Kuttawa Recreation Area (Plate #9) Zone 1

Though relatively limited in size, 41 acres, this waterfront area, essentially within the city of Kuttawa and directly adjacent to Kentucky Highway 295, enjoys heavy visitation as a bonafide day-use area by picnickers, swimmers, and boaters. The site is split by 19 acres of land and water area under lease for the operation of Kuttawa Harbor Marina, a concessionaire-operated commercial facility.

Old Kuttawa Recreation Area includes a parking and launching area. A small swimming beach, playground, and adjoining picnic area are in a relatively sheltered cove in the southwestern portion of the site. The Anderson-Woodland Trail, a National Recreation Trail, is located on a knoll south of the beach and is wooded with significant specimens of native and imported trees. A map is provided to guide visitors along the interpretive trail and by a scenic overlook. These facilities are heavily used by area residents; it may be reasonable to expect greater cooperation from local governments in the operation and maintenance of these facilities. Active efforts should be continued to secure this type of local participation.

Future plans include expansion of the beach, a second restroom facility more closely related to the beach and picnic area, a picnic shelter, and additional parking.

A new trail will provide an alternative route to the overlook area for bathers and picnickers. This will reduce user impact on the already heavily used interpretive trail.

Summary of Facilities, Old Kuttawa Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING STALLS				
Car-paved (each)	66	40		106
Car/Trailer-paved (each)	20			20
LAUNCH RAMPS				
1 lane (each)	2			2
Courtesy dock	1			1
BEACH	1	(Expand)		1
PICNICKING				
Sites (each)	25	11		36
Shelters (each)	1	1		2
SANITARY				
Waterborne restroom (each)	1	1		2
PLAYGROUND	1			1
TRAILS				
Hiking (miles)			.5	.5
Interpretive (miles)	1			1
OTHER				
Overlook	1			1
Multipurpose court	1			1

Site #116 - Eddyville Recreation Area (Plate #10) Zone 1

Eddyville Recreation Area is located at the former site of the town of Eddyville. It is a day-use site containing a total of 15 acres; 10 acres are currently developed. The site is mostly used for picnicking by local residents who work at the prison and by relatives visiting with inmates. Existing facilities include launching and picnic areas.

Efforts are currently underway to make arrangements for Lyon County to be responsible for operation and maintenance at this site. Those efforts are continuing and should result in a final lease of the area soon.

No future facilities area planned.

Summary of Facilities, Eddyville Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
PARKING STALLS				
Car (each)	75			75
Car/trailer (each)	20			20
LAUNCH RAMP				
1 lane (each)	1			1
PICNICKING				
Sites (each)	15			15
SANITARY				
Waterborne restroom (each)	1			1

Site #220 - Coleman Bridge Launching Area (no plate) Zone 1

This five acre launching-only site is located on the left bank of Eddy Creek near the State Highway 730 bridge crossing. One acre is presently developed. Use of this site is primarily by visitors and sightseers.

No future development is planned.

Summary of Facilities, Coleman Bridge Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Unpaved (miles)	1			1
PARKING STALLS				
Car/Trailer (each)	10			10
LAUNCH RAMPS				
1 Lane (each)	1			1

Site #121 - Eddy Creek Recreation Area (Plate #11) Zone 1

Eddy Creek Recreation Area is located adjacent to State Highway 93 and consists mainly of hilly wooded terrain although some gently sloping areas exist. The site has a total of 102 acres, 30 of which are developed for the recreation area. 68 acres (52 acres land; 16 acres water) is under lease for the operation of Eddy Creek Port. The leasing of additional area is presently being discussed with the current lessee.

Summary of Facilities, Eddy Creek Recreation Area

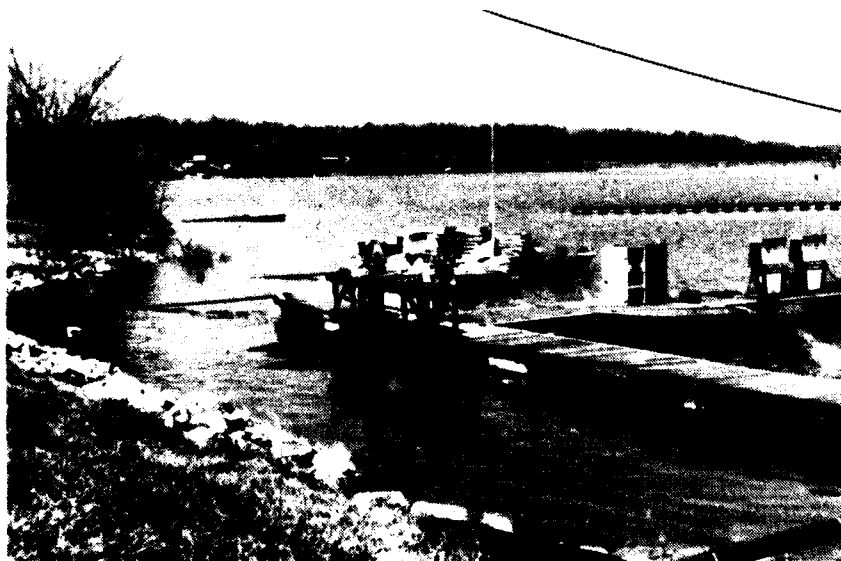
<u>Facility</u>	<u>Near Existing</u>	<u>Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			
PARKING STALLS				
Car-paved (each)	128			128
Car/Trailer-paved (each)	50			50
LAUNCH RAMPS				
1 lane (each)	2			2
Courtesy dock (each)	1			1
BEACH (each)	1			1
CAMPING				
Group (each)	24			24
PICNICKING				
Sites (each)	10			10
SANITARY				
Waterborne restroom (each)	1			1
Shower (each)	1			1

Current uses include camping, picnicking, and swimming. These facilities are used by campers and local residents. Eddy Creek Port, a concessionaire development, includes a permanent overnight facility (motel).

Future development at the Eddy Creek site is planned by the current leaseholder and includes a conference facility with cabin development and associated amenities such as swimming, tennis, etc.



EDDY CREEK MARINA



Fish Cleaning Station, EDDY CREEK MARINA

Site #123 - Dryden Creek Launching Area (Plate #11) Zone 1

Located just off Highway 1285, Dryden Creek provides boat access for a large number of local fishermen. This is a 35 acre site with one acre presently developed. Future acquisition and development is planned.

Summary of Facilities, Dryden Creek Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1		2	3
PARKING				
Car-paved (each)			125	125
Car-trailer - paved (each)	12		60	72
LAUNCH RAMPS				
1-lane (each)	1			1
Courtesy Dock (each)	1			1
Fishing Pier (each)			2	2
CAMPING				
Modern (each)			75	75
SANITARY				
Restroom with shower (each)			2	2

The proposed acquisition parcel is located on a peninsula directly west of the existing Dryden Creek Launching Area and north of the Cannon Springs Launching Area, across the north fork of Dryden Creek embayment. It is a site of approximately 55 acres, most of which is wooded and with good access potential from Highway 274. The physiographic

characteristics of the property are similar to that of Cannon Springs; however, the slopes are generally not as steep. The orientation of the site provides desirable exposures and generally good visual contact with Lake Barkley.

The expansion of Dryden Creek is large enough to support a wide variety of day-use and stay-use facilities that will compliment the planned development at Cannon Springs. These include a large marina complex, with restaurant and cabins to be operated by a commercial concessionaire; modern camping; and natural areas.

Site #124 - Hurricane Creek Area (Plate #10) Zone 1

Hurricane Creek is a 50 acre fee site with 40 acres developed. This site, heavily used primarily by campers, includes a controlled modern campground with a new restroom with showers, beach, and a boat launching area. Presently, day users wishing to use the boat launch must go past the entrance station into the controlled area, since there is no day-use ramp nearby. The additional ramp shown on the site plan will alleviate this problem.

The site is presently developed to its capacity. The limited area not developed is either steep slopes or below the flood pool elevation 375.0. The only planned improvement is the additional ramp and some planting adjacent to the entrance to provide some screening to the existing beach.

Summary of Facilities, Hurricane Creek Camping Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING STALLS				
Car/trailer-paved (each)	24			24
LAUNCH RAMPS				
1-lane (each)	1	1		2
Courtesy dock (each)	1			1
BEACH (each)	1			1
CAMPING				
Modern (spaces)	51			51
Entrance Station (each)	1			1
SANITARY				
Waterborne restroom (each)	1			1
Dumpstation (each)	1			1
PLAY AREAS (each)	1			1
MULTIPURPOSE COURT (each)	1			1

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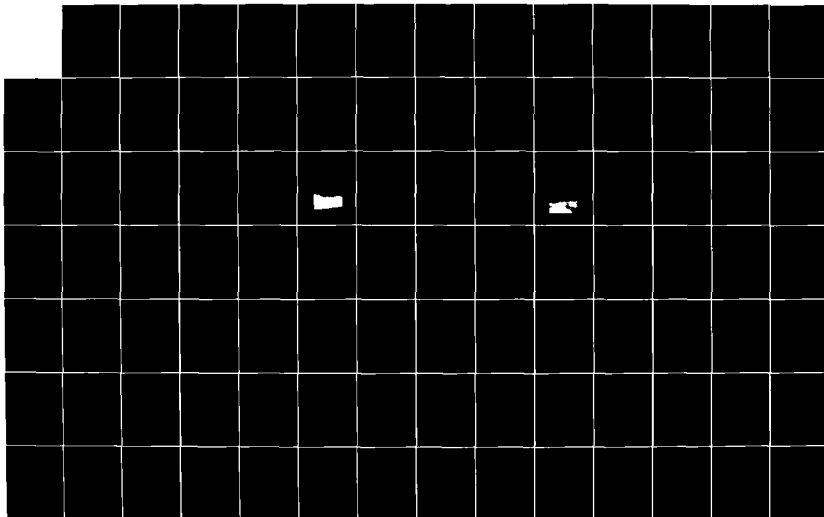
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TENNESSEE(U) CORPS OF ENGINEERS NASHVILLE TN NASHVILLE
DISTRICT JAN 83

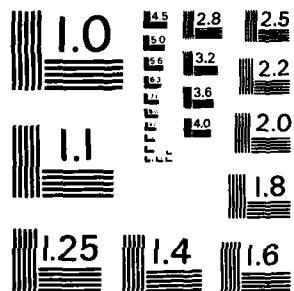
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Site #125 - Rockcastle Recreation Area (no plate) Zone 1

This 10 acre site (2 acres developed) is primarily day-use, with launching by fishermen, swimming, and picnicking. There is also a view of the lake from a large rock outcropping at a small picnic area. An existing beach will be upgraded to be used on a continuing basis. Picnic units will be relocated for consolidation.

Summary of Facilities, Rockcastle Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING STALLS				
Car/Trailer-paved (each)	10			10
LAUNCH RAMPS				
1-lane (each)	1			1
BEACH (each)	1	(Upgrade)		1
PICNICKING				
Sites (each)	2	(2)R*		0

* R - Relocate/Remove

Site #228 - Rivers End Launching Area (no plate) Zone 1

Rivers End is a 25 acre site relatively remote in terms of access. One acre is presently developed.

This site serves primarily as a fishing access only; no future development is planned.

Summary of Facilities, Rivers End Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Unpaved (miles)	1			1
PARKING STALLS				
Car/trailer (each)	10			10
LAUNCH RAMP				
1-lane (each)	1			1

Site #129 - Little River Recreation Area (Plate #12) Zone 1

Little River Recreation Area is a 31-acre site located on the Little River embayment at the State Highway 274 bridge. A majority of its use is by local residents on a day-use basis. Presently 15 acres are developed and include picnicking and launching facilities. The site is divided by the highway with the launch ramp on one side, and the other facilities on the opposite side.

The principal demand at this site is for convenient fishing access to the Little River embayment. In the interest of safety and efficiency, the existing picnic area is recommended to be removed and relocated to other sites.

Summary of Facilities, Little River Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Pave (miles)	.25			.25
PARKING				
Car - paved (each)	24			24
Car/trailer-paved (each)	24			24
LAUNCH RAMPS				
1-lane (each)	1			1
Courtesy dock	1			1
PICNICKING				
Sites (each)	5	(5)R*		0
SANITARY				
Vault restroom	2			2

* R - Relocate/Remove

Site #130 - Cadiz Recreation Area (Plate #12) Zone 1

This 75 acre site, 25 acres of which are developed, is located within the city limits of Cadiz. It is strictly a day-use site, used most heavily by local residents. The majority of the developed area is maintained in turf and ornamental plants.

Summary of Facilities, Cadiz Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING				
Car-paved (each)	49		34	83
Car/trailer-paved (each)	20			20
LAUNCH RAMP				
1-lane (each)	1			1
PICNICKING				
Sites (each)	24	10		34
Shelters (each)	1	1		2
SANITARY				
Waterborne (each)	1		(expand)	1
OTHER				
Ball fields (each)			2 (at full local expense)	2
Tennis courts (each)			2 (at full local expense)	2

Adjacent to the Little River, Cadiz Recreation Area contains a picnic area and a launching area. This recreation area has a high carrying capacity based on soils and vegetation; and its location immediately adjacent to the City of Cadiz provides excellent opportunities for intensive use.

Future plans call for additional picnic sites, softball diamonds, tennis courts, and expansion of the parking area. However, these additional facilities can only be developed if a cost-sharing sponsor is secured.

Since this site is located within the limits of the City of Cadiz, earlier planning was coordinated with this community. Efforts to secure local participation in the operation and maintenance have been unsuccessful to date but will be continued.

Site #131 - Lake Barkley State Resort Park (no plate) Zone 1

Planning for this state park was initiated during the early stages of the recreation planning for Lake Barkley. The park is located on the Little River embayment and encompasses a total of 1700 acres of project lands. The main entrance is the Jefferson Davis Highway. The park offers a full range of resort and day use opportunities. Facilities have been developed for launching, camping, and picnicking, and include overnight rooms and cabins, a restaurant and shops, a swimming beach, a boat moorage, and a golf course. Use of the park is both local (day-use) and regional (overnight use). Many families use the park for a one to two week vacation during the summer months. Most of the facilities are open year-round, with much of the off-season use from groups for meetings, conventions, and workshops. The entire park, with the exception of the boat dock, is operated and maintained by the Kentucky Department of Parks.

The State of Kentucky has no immediate plans for additional development at Lake Barkley Resort Park.

Summary of Facilities, Lake Barkley State Resort Park
(Facilities are located on federal and state owned land)

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	5			5
PARKING STALLS				
Car-paved (each)	1000			1000
Car-Trailer-paved (each)	56			56
LAUNCH RAMPS	2(10 lanes)			3
Courtesy dock	1			1

<u>Facility</u>	<u>Near Existing</u>	<u>Future</u>	<u>Future</u>	<u>Total</u>
BEACH (Each)	1			1
Bathhouse (each)	1			1
CAMPING				
Modern (sites)	100			100
Cabins (each)	9			9
Rentals (sites)	133			133
PICNICKING				
Sites (each)	200			200
SANITARY				
Waterborne (each)	1			1
Shower (each)	3			3
PLAY AREA	1			1
TRAILS				
Hiking (miles)	4			4
Interpretive (miles)	1			1
Equestrian (miles)	1			1
AMPHITHEATRE	1			1
OTHER				
Multipurpose Court	1			1
Swimming Pool	1			1
Golf Course (18 hole)	1			1
Rifle/Archery Range	1			1
Snack bar/rest.	1			1
Horse Rental	1			1

Site #134 - Devils Elbow Recreation Area (Plate #12) Zone 1

Devils Elbow, a 30 acre Recreation Area, is easily accessible from the Jefferson Davis Highway, U.S. 68. Presently, 10 acres are developed and include walk-in camping and a launching area.

Summary of Facilities, Devils Elbow Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1	.5	.5	2
PARKING STALLS				
Car-paved (each)	20		(5)R*	15
Car/trailer-paved (each)	40			40
LAUNCH RAMPS				
1-lane (each)	1			1
Courtesy dock (each)	1			1
CAMPING				
Intermediate (spaces)	21	20	12	53
Entrance station			1	1
SANITARY				
Washhouses (each)	1	1		2
Dump Station (each)			2	2
PLAY AREAS				
MULTIPURPOSE COURT			1	1
FISH CLEANING STATION			1	1

The site is relatively small, but accessibility, terrain, and open tree cover make it highly desirable for expansion of camping facilities. The soils (Hammack-Baxter and Hammack silt loam) indicate a medium carrying capacity for such expansion, especially in the northwest portion of the site. This area of the site is directly adjacent to a residential subdivision, and development here will require appropriate screening.

The slopes in much of the area designated for camping will require appropriate protection to minimize deterioration by increased traffic.

A new multipurpose court and fish cleaning station will also serve the increased number of people using Devils Elbow.

Site #236 - Calhoun Hill Launching Area (no plate) Zone 1

Boat launching occurs on the two developed acres of this eight acre area which serves local fishermen and pleasure boaters.

No future development is planned.

Summary of Facilities, Calhoun Hill Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING STALLS				
Car/trailer-paved (each)	30			30
LAUNCH RAMP				
1-lane (each)	1			1
Courtesy dock (each)	1			1
SANITARY				
Vault (each)	1			1

Site #237 - Donaldson Creek Launching Area (Plate #13) Zone 2

Only one acre of this heavily wooded and hilly 53 acre site is developed. Located south of Calhoun Hill, it currently receives little use throughout the year. This is mainly attributed to its remote location and poor access roads.

Summary of Facilities, Donaldson Creek Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Unpaved (miles)	1			1
PARKING STALLS				
Car (each)		10	10	20
Car/trailer (each)	29		(10)	19
	(change to car)			
LAUNCH RAMP				
1-lane (each)	1			1
CAMPING				
Primitive (sites)			12	12
SANITARY				
Chemical (each)			3	3
TRAILS				
Hiking			1	1

Donaldson Creek does, however, provide excellent opportunities for hiking and primitive camping. Ample space is available to site individual camp areas in such a way that relative isolation can be achieved for primitive camping by individuals as well as by large groups (i.e. Boy Scouts).

A future trail will connect Donaldson Creek to Bumpus Mills, a distance of 25 miles along the lake shoreline. (see Plate #4). This link between the two sites will also include connections to Linton and Dry Creek Recreation Areas, which is consistent with the intended resource oriented recreational development of Lake Zone 2.

Topography creates some limitations to development and use of the Donaldson Creek site. Camping sites will be established, and will include tent pads and gathering places (fire-rings). These will be appropriately identified and located on maps. To minimize site impacts due to traffic, vehicles will be limited to designated parking areas. Access to camping sites will be entirely on foot.

Servicable vault toilets or chemical privies will be located in approximately three points within the camping area.

Site #139 Linton Recreation Area (Plate #13) Zone 2

Linton Recreation Area is a 56 acre site located along Highway 164 at the small community of Linton, Kentucky. It is a day-use site and includes picnicking and boat launching facilities on the 5 acres presently developed. Its use is primarily from local residents, Hopkinsville residents, and personnel from nearby Fort Campbell.

Summary of Facilities, Linton Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROADS				
Paved (miles)	1			1
PARKING STALLS				
Car-paved (each)		20		20
Car/trailer-paved (each)	22			22
LAUNCH RAMPS				
1-lane (each)	1			1
Courtesy Dock (each)	1			1
SANITARY				
Waterborne (each)		1		1
Vault (each)	1	(1)R*		0
PICNICKING				
Sites (each)	5	5		10

* R - Relocate/Remove

The configuration of the site does not provide sufficient opportunities for the development of camping sites.

A restroom and additional picnic units will be added to the eastern portion of the property near the boat ramp. An unimproved road into the existing picnic area will be removed, and additional trees will be planted for shade. Access to an unauthorized camping area will be barricaded to eliminate a maintenance and sanitary problem.

Site #243 - Tobacco Port Launching Area (no plate) Zone 2

Tobacco Port is a seven acre site. One acre is developed and used for boat launching.

No future development is planned.

Summary of Facilities, Tobacco Port Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Unpaved (miles)	1			1
PARKING STALLS				
Car/trailer-Unpaved (each)	20			20
LAUNCH RAMPS				
1-lane (each)	1			1

Site #245 - Saline Creek Launching Area (no plate) Zone 2

Saline Creek is not easily accessible. It is a 16 acre site with one acre developed for parking and boat launching.

No future development is planned.

Summary of Facilities, Saline Creek Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Unpaved (miles)	1			1
PARKING STALLS				
Car/Trailer-Unpaved (each)	40			40
LAUNCH RAMPS				
1-lane (each)	1			1

Site #149 - Blue Creek Recreation Area (Plate #14) Zone 2

This 52 acre site receives use primarily from local residents and Fort Campbell personnel (hunters and fishermen). Ten acres are developed and include a launching area, a picnicking area, and camping sites. All facilities, other than the launch ramp, will eventually be removed, and no additional development is planned for the future. Blue Creek is directly adjacent to the Barkley Waterfowl Management area, and its future use will be consistent with the intentions for Lake Development Zone 2.

Summary of Facilities, Blue Creek Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Unpaved (miles)	1			1
LAUNCH RAMPS				
1-lane (each)	1			1
CAMPING				
Intermediate (each)	10	(10)R*		0
PICNICKING				
Sites (each)	10	(10)R*		0
SANITARY				
Vault (each)	2	(2)R*		0

* R - Relocate/Remove

Site #151 - Dyers Creek Recreation Area (Plate #15) Zone 2

This 80 acre site is situated on the right bank of Dyers Creek at the U. S. Highway 79 bridge outside Dover. The 10 acres now developed include picnicking and boat launching facilities.

Planned future development consists of a commercial marina to be developed as the market analysis indicates.

Summary of Facilities, Dyers Creek Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING STALLS				
Car-paved (each)	75			75
Car/trailer-paved (each)	20			20
LAUNCH RAMPS				
1-lane (each)	1			1
PICNICKING				
Sites (each)	13			13
Shelters (each)	1			1
SANITARY				
Waterborne (each)	1			1
PLAY AREAS	1			1
OTHER				
Marina			1	1

Site #166 - Dover Picnic Area (no plate) Zone 2

This site is an 11 acre parcel, with two acres developed, located within the city limits of Dover. Presently, the area contains a launching ramp.

Five picnic sites will be added in the future.

Summary of Facilities, Dover Picnic Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	.25			.50
Unpaved (miles)	.25	(pave)		
PARKING STALLS				
Car/Trailer-paved	20			20
LAUNCHING RAMPS				
1-lane (each)	1			1
Courtesy dock (each)	1			1
PICNICKING				
Sites (each)		5		5

Site #153 - Dover Recreation Area (Plate #15) Zone 2

Located just east of Dover, the site is presently leased to the city of Dover for recreational development. Fifteen acres of this 56 acre site are developed for picnicking, camping, and a boat launching area. The city's plans, developed in conjunction with the SCS, include a beach, a swimming pool, tennis courts, ball fields, picnicking sites, and a nature area.

Summary of Facilities, Dover Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
PARKING STALLS				
Car (each)	27			27
Car/trailer (each)	20			20
LAUNCH RAMPS				
1-lane	1			1
CAMPING				
Intermediate (each)	10			10
PICNICKING				
Site (each)	8			8

* R - Relocate/Remove

Site #255 - Rivers Bend Launching Area (Plate #16) Zone 3

The 120 acre Rivers Bend site has 15 acres developed for boat launching, camping, and picnicking. Due to difficulty of access, low attendance, and continuing maintenance concerns, all facilities with the exception of the launching area will be removed.

This site is directly adjacent to the Cross Creeks Wildlife Refuge.

Summary of Facilities, Rivers Bend Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Unpaved (miles)	1	(.5)R*		.5
PARKING STALLS				
Car/trailer (each)	25			25
LAUNCH RAMPS				
1-lane (each)	1			1
CAMPING				
Intermediate (sites)	10	(10)R*		0
PICNICKING				
Sites (each)	5	(5)R*		0

* R - Relocate/Remove

Site #158 - Guices Creek Recreation Area (Plate #17) Zone 3

Guices Creek has a total of 15 acres and is divided by Highway 149 into two parcels. Ten acres have been developed for camping, picnicking, and boat launching. Since its divided nature and low attendance make sustained maintenance impractical, all facilities with the exception of the launching ramp are to be removed. Five of the picnic sites will remain in the near future and will be located near the launching area.

The low lands directly adjacent to the lake have the potential to provide graining for waterfowl. This use is consistent with plans for this area of the lake, where Lake Development Zone 2 (Resource Oriented Recreation) makes a transition to Zone 3 (Limited Recreation).

Summary of Facilities, Guices Creek Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Unpave (miles)	1	(.50)R*		.50
PARKING STALLS				
Car-paved (each)	12			12
Car-trailer unpaved (each)	30			30
LAUNCH RAMP				
1-lane (each)	1			1
CAMPING				
Intermediate (sites)	10	(10)R*		0
PICNICKING				
Sites (each)	10	(5)R*		5
SANITARY				
Chemical (each)	2	(2)R*		0

* R - Relocate/Remove

Site #262 - Smiths Branch Launching Area (Plate #18) Zone 3

The 30 acre Smiths Branch site is used mostly by residents of the Clarksville area and by Fort Campbell personnel. Ten acres are presently developed for picnicking, parking, and boat launching.

All picnicking facilities will be removed.

Summary of Facilities, Smiths Branch Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING STALLS				
Car/trailer-paved (each)	25			25
LAUNCH RAMPS				
1-lane (each)	1			1
PICNICKING				
Sites (each)	10	(10)R*		0

* R - Relocate/Remove

Site #163 - Trice Landing Park (no plate) Zone 3

This 30 acre site is leased to the city of Clarksville. Its five developed acres are heavily used for picnicking and boat launching.

Consistent with the intentions for Lake Development Zone 3, no further development is recommended.

Summary of Facilities, Trice Landing Park

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING STALLS				
Car/trailer-paved (each)	10			10
LAUNCHING RAMP				
1-lane	1			1
PICNICKING				
Sites (each)	10			10
SANITARY				
Waterborne (each)	1			1

Site #164 - McGregor Park (no plate) Zone 3

McGregor Park is the most heavily used site at Lake Barkley on a per acre basis, and serves the local residents of the Clarksville area. It is a long narrow parcel totalling seven acres and is leased by the city of Clarksville. Five acres are developed and contain picnicking and boat launching facilities. Although a lack of parking is a serious problem at this site, there is no land for expansion.

Further development is prohibitive due to the parcel size and configuration, and is also contrary to policy consistent with the concept for Lake Development Zone 3.

Summary of Facilities, McGregor Park

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1			1
PARKING STALLS				
Car-paved (each)	16			16
Car/trailer - Paved (each)	20			20
LAUNCHING RAMPS				
1-lane	1			1
PICNICKING				
Sites (each)	25			25
SANITARY				
Waterborne (each)	1			1

Site #113 - Buzzard Rock Recreation Area (Plate #9) Zone 1

This site comprises 85 acres of which 50 acres are under lease for the operation of Leisure Cruise Marina. Only two acres are presently developed for the marina and launching area.

From the high point of the site, on the peninsula, an extensive vista of the lake is possible. The majority of the peninsula is rated for severe limitations to such developments as modern campgrounds and septic tanks, due to soils and steep slopes.

On the ridgetops, because of less severe slopes, limitations are rated moderate for development, except for trails and septic systems.

The lessee had in the past contemplated cabins, a restaurant, and motel development for this peninsula.

Present plans are for a much less intense and more site responsive recreational development. Plans include hillside platforms which will create minimum disruption to the sensitive slopes. The platforms are specifically suited to fit individual site criteria, and are intended for use by groups or individuals. Access to the lake will be by specifically designated trails and stairs. Fishing piers accessible from the trails will be located on either side of the peninsula, and there will be a scenic overlook at the extreme southeastern point.

Summary of Facilities, Buzzard Rock Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1		.25	1.25
PARKING STALLS				
Car-Paved (each)	20		75	95
Car/Trailer-Paved (each)	25			25
LAUNCH RAMPS				
1-lane (each)	1			1
CAMPING				
Hillside platform units (each)			72	72
PICNICKING				
Sites (each)			10	10
Shelters (each)			6	6
SANITARY				
Chemical (each)			3	3
PLAYGROUND			1	1
TRAILS				
Hiking (miles)			1.25	1.25
Equestrian (miles)		1		1
OTHER				
Overlook (each)		1		1
Fishing Piers (each)			2	2

Shelter houses and a playground will be provided for large groups in a central location accessible by trail. Vehicular access will be restricted to a central parking area. Cul de sac loops will be required at the terminus of the parking areas to allow for loading and unloading of equipment by campers.

An equestrian trail loop will enter the property from the main access road with horse tie-ups provided at the parking areas. The equestrian trail is part of the system linking Buzzard Rock with Eureka and Boyds Landing Recreation Areas.

Site #323 - Cannon Springs Launching Area (Plate #19) Zone 1

Located along Highway 1285, this 219 acre peninsula is an attractive parcel because of its heavily wooded slopes, physiographic features, size, accessibility from I-24, and extent of contiguous shoreline.

Presently only five acres of Cannon Springs is developed as launching and picnic areas. Fishermen are the primary users, with the picnic area receiving only minimal use. The launching area will remain, but the picnic sites and vault toilet will be removed to facilitate an immediate reduction in operation and maintenance costs.

A variety of compatible uses are planned for the future of Cannon Springs as a Recreation Area, including a bird/wildlife interpretive area, camping, hillside platforms, cabins, and a marina complex.

The heavily forested, hilly site conditions are ideal for a day-use interpretive area. The northeastern portion of the site has been designated for this use. Small parking areas will occur at the head of loop trails that will provide access to the various physiographic areas of the site: ravine, ridgetop, lake side bluffs, and lake and stream side low lands. The area in the southeastern portion of the property, adjacent to the reservoir and the South Fork of Dryden Creek, is ideal for bird watching and could provide an opportunity for a cooperative effort between local bird watching groups and the Corps of Engineers. This entire portion of Cannon Springs has the potential to become an important interpretive center, eventually including an exhibit center to provide direct interpretor/visitor contact.

Summary of Facilities, Cannon Springs Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Unpaved (miles)	1			1
PARKING STALLS				
Car - paved (each)	25		50	75
Car/trailer - paved (each)	25		20	45
LAUNCH RAMPS				
1-Lane (each)	1			1
CAMPING				
Modern (each)			50	50
Cabins (each)			25	25
Hillside Platforms units (each)			50	50
PICNICKING				
Sites	16	(16)R*		0
PLAYGROUND			2	2
TRAILS				
Hiking (miles)		2.5		2.5
Interpretive (miles)		2		2
AMPHITHEATRE			1	1
OTHER				
Fishing Piers			2	2

* R - Relocate/Remove

The upland ridges in the western portion of the property are suitable for modern camping, walk-in camping, platform camping, and/or cabins. Here, the extent of steep slopes is the single most important factor in determining the extent of intensive recreational development.

The slopes along the south of the peninsula are particularly suitable for cabin/campsite development. This area has excellent exposure and provides attractive views to the lake.

A detailed market area study for this site was conducted in 1976 to determine the economic feasibility of establishing a marina here. The study concluded that such a development was not economically feasible at the time but noted that when Interstate-24 was completed the proposal should be re-examined. I-24 has been recently opened; further study of this site is now in order.

A marina complex is planned for the present location of the south embayment launching area. Available space for parking necessary to support the marina and its associated developments, i.e., restaurant, bait shop, etc., may determine the extent to which this facility may be developed.

Although the property may be developed in the future for intensive recreational uses that are consistent with the concept for Lake Development Zone 1, the entire site can provide valuable interim interpretive experiences prior to its development as a recreation area. This use requires very little maintenance and/or immediate expenditure.

Site #324 - Port Prizer Marina and Campground (Plate #10) Zone 1

This is a 95 acre site, of which 57 acres are leased for the operation of Port Prizer Point Marina and campground. The original picnic sites developed here have been converted to campsites and included in the concessionaire's lease. Additional campsites have also been developed by the lessee. Other facilities here include rental cabins, a commercial marina, and a launching area all within the leased area. Port Prizer Point is heavily used by fishermen and has popular fishing tournaments.

Future development plans are for additional camping facilities.



Wash House,PRIZER POINT CAMPING & PICNIC AREA

Summary of Facilities, Port Prizer Marina and Campground

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1		.5	1.5
PARKING STALLS				
Car-Paved (each)	90			90
Car/trailer-Paved (each)	25			25
LAUNCHING RAMPS				
1-lane (each)	1			1
CAMPING (Corps-constructed)				
Intermediate (each)	20			20
CAMPING (concessionnaire-constructed)				
Intermediate (each)	25	15	40	80
PICNICKING				
Sites (each)	4			4
Shelters (each)	1			1
SANITARY				
Waterborne (each)	1			1
Washhouse (each)	1		1	2

Site #145 - Bumpus Mills Recreation Area (Plate #20) Zone 2

Bumpus Mills is located midway between Lake Barkley State Park and the city of Dover. Access is indirect and includes approximately one (1) mile of unpaved, poorly maintained county road.

Ten acres of the total 255 acre site are presently developed for camping, picnicking, and launching area. Bumpus Mills Marina occupies 25 acres within the entire recreation area and includes rental cabins, marina, boat storage, and launching facilities.

The site is used by local residents, campers, and Fort Campbell personnel.

The variety of topography and extensive tree cover presents many attractive opportunities for recreation experiences. These factors also present limited constraints to recreational development; however, the limitations are not severe.

Plans include campground expansion that would tie into existing camping loops, a fish cleaning station, hiking trails, and fishing piers. Campsites will be large enough to accomodate boat parking. Existing picnic sites will be converted to campsites; campsites from other locations will be relocated here. Bumpus Mills will be the major, family-oriented camping area within Zone 2.

Summary of Facilities, Bumpus Mills Recreation Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	2			2
PARKING STALLS				
Car-Paved (each)	40	24		64
Car/Trailer-Paved (each)	80			80
LAUNCH RAMPS				
1 lane (each)	1			1
Courtesy Dock (each)	1			1
CAMPING				
Intermediate (each)	18	49	31	98
Entrance Station		1		1
PICNICKING				
Sites (each)	15	(15)R*		0
SANITARY				
Waterborne (each)	1			1
Shower (each)	1	1		2
Dumpstation (each)	1	1		2
PLAYGROUND	1	1		2
TRAILS				
Hiking (miles)		25		25
Interpretive (miles)		.5		.5
OTHER				
Fish Cleaning Station		1		1
Fish Piers		2		2

* R - Relocate/Remove

The expansion of camping facilities will require the addition of showers to the existing restroom building. Plans also include a new playground and multipurpose court. An existing gravel turn-around will be eliminated near the shower addition, and a small parking pull-off established.

The hilly, forested land in the southeastern portion of the site has been set aside for future development of an interpretive area. The terrain and soils here are not conducive to other more intense recreational development. This area and its associated trail system will increase the variety of experiences available to the stay-user and can serve as an educational feature for organized groups.

Bumpus Mills is the southern terminus of the major hiking corridor (see Plate #4). It begins at Donaldson Creek and follows the lake shore all the way to Bumpus Mills, entering the site near the Bumpus Mills Marina.



BUMPUS MILLS MARINA

Site #152 - Hickman Creek Launching Area (Plate #21) Zone 2
(Future Recreation Area)

Hickman Creek, a large parcel of 248 acres, is located on an embayment just northwest of the city of Dover. Across the embayment is the Corps of Engineers Dover Subbase (site 98). The site is accessible from State Highway TN 49 ("The Trace"), a major north/south scenic route that runs the length of Land Between the Lakes.

Fifty (50) acres have been developed to include picnic sites, campsites, and launching areas. All will be removed, except for one launching ramp, due to extremely low usage and excessive maintenance costs.

Plans for Hickman Creek as a future Recreation Area include using approximately three-quarters of the site as an interpretive area with appropriate access and trails. The ridge tops in the north central portion of the site are planned for group camping.

South across the embayment from Hickman Creek is the Fort Donelson National Military Park (Site 718). From Hickman Creek, ideal views are possible onto the historic grounds, which were used by Union forces during the battle. This site could provide a significant addition to the interpretive potentials and integrity of the National Battleground.

Summary of Facilities, Hickman Creek Launching Area

<u>Facility</u>	<u>Existing</u>	<u>Near Future</u>	<u>Future</u>	<u>Total</u>
ROAD				
Paved (miles)	1.0			1.0
Unpaved (miles)	1.0			1.0
PARKING STALLS				
Car-Paved (each)	143			143
Car/Trailer-Paved (each)	50			50
LAUNCH RAMPS				
1 lane (each)	2			2
CAMPING				
Intermediate (each)	17	(17)R*		0
Group			50	50
PICNICKING				
Sites (each)	20	(20)R*		0
SANITARY				
Vault	1			1
OTHER				
Fish Piers			1	1

* R - Relocate/Remove

7.06.02 Future Public Use Areas on Corps Lands

Site #141 - Dry Creek (Plate #23) Zone 2

This parcel is currently managed by the Corps of Engineers. It is a large heavily wooded site of 975 acres located directly south of Linton Recreation Area across the Dry Creek embayment. Its lack of good access roads, size, and rugged physiographic character make this site ideally suited to primitive camping and hiking. On an interm basis the site is being used for ORV trails.

Dry Creek is the half-way point of the major hiking corridor along the lake shore between Donaldson Creek and Bumpus Mills Recreation Areas. This trail connection strengthens the plans for primitive campsites at Dry Creek. This use is also consistent with the intended development character of Lake Zone 2 within which Dry Creek is located.

The site has ample acreage to accomodate large camper groups and can be opened to organizations on a reservation basis.

Site # 504 - Clarksville Fairground (no plate) Zone 3

The Clarksville Fairground provides a variety of recreational experiences for the local residents including picnicking, fishing, and field sports. A launching ramp is planned for the fairgrounds which will help alleviate some of the crowded conditions that now occur at McGregor Park.

Site #401 - McAdoo Creek (no plate) Zone 3

The Tennessee Wildlife Resources Agency, in conjunction with the Two Rivers Gun Club, has made application to utilize approximately 120 acres of land on McAdoo Creek. The area is planned as a youth and adult recreation/education center. The facility will display the native flora and fauna and provide natural camping facilities as well as facilities for hunter education and weapons safety.

This development is consistent with the concept for Lake Zone 3 and does not encourage additional use of the lake that will conflict with other uses.

Site #180 - State Park Site in Lyon County (no plate) Zone 1

This future state park site is located on a peninsula in Lake Development Zone 1 northeast across Lick Creek embayment from the Lyon County Port. Plans have not yet been developed for the park. However, the intensive recreational experiences associated with the development of state parks is consistent with the development intentions of Lake Zone 1 and should compliment the other public use areas in this zone of the lake.

Site #227 - Goose Hollow (no plate) Zone 1

This 20 acre site is located on the main body of the lake where adjoining land is experiencing extensive residential development. In the future, pressure is expected for a launching area here. The surrounding residents will influence securing an acceptable local sponsor, possibly Trigg County. Only launching is proposed.

7.06.03 Commercial Docks/Concessionaries

During the preparation of the original Master Plan for Lake Barkley, sites were selected and allocated for development as commercial marina sites. Site preparation by the Corps of Engineers in these areas consisted of the construction of necessary access roads, launching ramps, and parking lots and of underwater excavation for all contemplated initial sites. Limited basic facilities were provided at the future site locations. All of these improvements were completed at full federal expense before the sites were offered to potential concessionaires. Over a number of years, leases were awarded at seven of these locations, six of which are still in existence. At one site, Dyers Creek, the concessionaire was unable to conduct a profitable operation and relinquished his lease. The remaining six commercial marinas described below continue to operate with varying degrees of success. All marinas operate year-round.

Private investment at the six commercial marinas represents a total investment of \$2,794,500.00.

Currently there are only two future commercial dock developments proposed, one at Dyers Creek and one at Cannon Springs (see previous discussion). The basic facilities are available at Dyers Creek for a commercial dock. Under current policy for recreation development at completed projects, the Corps cannot develop additional basic facilities at commercial dock sites at full Federal expense. The Corps could only cost-share with a local public body to provide these basic facilities.

Site #103 - Port Ken-Bar (Plate #6) Zone 1

This marina site is located in the Grand Rivers Recreation Area and was the first marina to be established on the lake. Access to the site is over approximately one mile of secondary road from State Route 453. The marina now features primarily boat moorage and sales. Attempts were made in the past to provide restaurants and other commercial services. However, these attempts have met with very little success. The results of these failures are vacant facilities creating a visually low quality development. The marina receives a combination of use by local residents and by people from nearby states, primarily those to the north. Investments at this dock to date amount to an estimated \$788,000.

Site #113 - Leisure Cruise Marina (Plate #9) Zone 1

This site is also in the downstream portion of Lake Barkley and convenient to U. S. Highway 641. The marina is located on the Poplar Creek embayment within the Buzzard Rock Recreation Area. Services offered are primarily moorage and limited sales of gasoline and supplies. The major use here is by local residents mooring pleasure boats. This marina, which contains fixed assets valued at \$380,000, was originally located in the Eureka Recreation Area but was moved due to a problem with exposure to excessive winds and waves. It is a pleasant, well maintained marina facility.

Site #115 - Kuttawa Marina (Plate #9) Zone 1

This is the most recently established marina on Lake Barkley, is well maintained, and contains on-site improvements valued at \$341,000. The major service provided is moorage, although a sales area and a small restaurant are also available. This marina is

quite small containing only 19 acres of combined land and water area. It is located a few miles from the dam and within the limits of the relocated town of Kuttawa. Wind and waves are a moderate problem at this site because of its southeastern-southwestern exposure to a large open area of the lake. This problem has been studied in detail over the past several years, but to date an economical solution has not been identified. Kuttawa Marina is one of the most heavily used commercial marinas on Lake Barkley.

Site #121 Eddy Creek Port (Plate #11) Zone 1

This commercial operation was one of the first, and is among the most successful marinas on the lake. Over the years, the lessee has continued to expand the facilities and services provided at this site, and the current development represents an investment of approximately \$852,000. Many services are available, including moorage, sales and services, a restaurant, boat rentals, and overnight lodging.

Located on the Eddy Creek embayment adjacent to State Route 93, this marina is easily accessible. The completion of I-24 in 1980 has further improved access to this site. The site currently contains 52 acres of combined land and water area. Eddy Creek Port is a well maintained marina facility and enjoys continued high levels of public use.

Site #324 - Port Prizer Point (Plate #10) Zone 1

This marina is located near the Lyon-Trigg County line approximately twenty-five miles upstream of the dam. The lease area has recently been expanded and now contains 57 acres of land and water. The marina attracts mainly fishers and features several fishing tournaments throughout the year. Originally, only moorage, rental, and limited sales and services were provided at this marina. Features added in recent years at Port Prizer

Point include overnight cabins and a campground. Currently the site contains a private investment of approximately \$341,000. A restroom building, access road, roads and parking, concrete launching ramp, the 15 camp sites, and a shelter are all improvements that were provided in the lease area with federal funds.

Site #145 - Bumpus Mills Marina (Plate #20) Zone 2

This commercial marina is situated approximately midway up the lake near River Mile 77, about 47 miles above the dam within the Bumpus Mills Recreation Area. It is the only commercial marina in Tennessee on Lake Barkley operating under a direct lease with the Corps of Engineers. Bumpus Mills serves primarily a fishing clientele. A large percentage of the public use of this marina originates from Tennessee, particularly Nashville, and the Fort Campbell military reservation located nearby. The marina has been moderately successful, and is fairly well maintained. However, limited access adversely affects its level of public use. The lease area contains 25 acres of land and water area, and the current services are limited to moorage, rentals, and a limited storage and sales area. Investment of private capital is estimated @ \$92,500 to date.

Site #151 - Dyers Creek (Proposed) (Plate #15) Zone 2

Proposed development at Dyers Creek is presented in Sections 7.06.01 and 7.06.03.

Site #323 - Cannon Springs (Proposed) (Plate #19) Zone 1

Proposed development at Cannon Springs is presented in Section 7.06.01.

7.06.04 Commercial Docks by Permit

Site #501 Yacht Harbor Marina (no plate) Zone 3

Yacht Harbor Marina is located south of Clarksville, TN, just off Highway 43-13 on River Road. It is built on a rather steep shore area, and as a result has had some erosion problems and has an extremely steep access drive down to the parking area. The steep slopes have not been adequately treated, creating an unsightly development. Expansion should be discouraged in consideration of Lake Zone 3's concept and objectives.

Site 503 - Red River Marina (no plate) Zone 3

Red River Marina is located at the confluence of the Red River and the Cumberland River in downtown Clarksville, TN. The marina serves Clarksville and Ft. Campbell, KY, providing limited services on a small site. Expansion should be discouraged in consideration of Lake Zone 3's concept and the already-congested river area at Clarksville.

7.06.05 Limited Commercial Docks

There are presently three Limited Commercial Docks on Lake Barkley. The docks are operated by Daytona Land Company, Tarryon Resort, and Holiday Hills. They are used solely for the storage of boats for campers staying at the respective developments.

7.06.06 Other Recreational Facilities

Sites #701-713, 714-719 (Plate 24) Zone 1

Land Between the Lakes (LBL) is a national demonstration area for recreation, forestry and wildlife management, and environmental education which was established by the Tennessee Valley Authority in the mid-1960s. LBL contains some 170,000 acres of land, roughly rectangular in shape, approximately forty miles long and between five and eight miles wide, with many miles of shoreline on both Kentucky and Barkley Lakes. Vehicular access to the area is limited to entrances at the north and south ends and from U.S. Highway 68 which bisects the area crossing both of the lakes. LBL features a wide range of attractions under the demonstration area concept. There are no commercial services available or planned for LBL. Existing improvements include several family campgrounds, group camps, numerous bike access points and informal use areas, a visitor center, environmental education center, and an 1850s living history farm.

Major objectives of LBL demonstration area are environmental education, historical interpretation, and general recreation, all in barrier-free, family atmosphere. In addition to general recreation, great emphasis is placed on fish and wildlife management. Hunting is one of the major attractions at LBL during the fall and winter months. LBL attracts a combination of local users, as well as users from outside the area. Off season use is moderate, and portions or all of the developed campgrounds are closed during the winter months.

Cutbacks in funding and personnel have limited recent development of this 170,000 acre demonstration project. All of the facilities have a national reputation; however, it appears unlikely that any expansion will occur in the next few years.

Corps of Engineers facilities along the eastern shore of Lake Barkley are complementary to the environmental aspects of the LBL areas, providing more developed camping sites and access ramps at various points on the Lake. Access to Lake Barkley within Land Between the Lakes is mostly at small, rustic campsites.

Discontinuation of demonstration projects such as TVA's Land Between the Lakes may occur in the future. Such a circumstance may require the Corps of Engineers to respond with appropriate alternatives at that time for the management and operations of those lands.

Cheatham Dam, Left and Right Bank Recreation Areas (no plate) Zone 3

Although not carried as sites on Lake Barkley, the Cheatham Left and Right Bank Recreation Areas provide limited access to the Barkley pool. Currently, the Right Bank has a launching ramp into Lake Barkley. The Left Bank has only access for bank fishing, but a launching ramp is proposed. This proposed ramp is important because the closure of Mayberry Branch has left the Left Bank residents between Cheatham Dam and Clarksville, a distance of over 20 miles, without a ramp access to Lake Barkley.

Fort Campbell Recreation Area

A special use area for Fort Campbell personnel is not considered necessary or desirable at this time. It is anticipated that such an arrangement would not significantly reduce visitation of Fort Campbell personnel from sites that they presently visit. Currently at Bumpus Mills, the Corps of Engineers has a third party operating agreement with Fort Campbell whereby ten slips are made available for use by Fort Campbell personnel. In exchange, Fort Campbell pays rent to the concessionaire there.

7.07 Lyon County Port

The site has undergone considerable physical alteration in order to accommodate port access and facilities. It has not, however, had any measurable impact on uses and/or operation of existing recreational facilities either in terms of visual impact or water quality. Continued monitoring of potential impacts is recommended, and proper development and management standards should be established with regard to port expansion and/or new related developments. The sensitivity of potential impacts associated with the Lyon County Port could be of even greater importance if the proposed Lyon County State Park is developed on property just north, across the embayment from the port.

7.08 Wildlife and Fisheries Management Lands

All of the Wildlife Management Lands occur in Lake Development Zone 2, which is consistent with the resource-oriented management concept for Zone 2.

Wildlife management programs along Lake Barkley are conducted by five separate governmental agencies: The U.S. Army Corps of Engineers, the Tennessee Valley Authority (TVA), the U.S. Fish and Wildlife Service, the Kentucky Department of Fish and Wildlife Resources, and the Tennessee Wildlife Resources Agency (TWRA). TVA operates the Land Between the Lakes (LBL), which is a multi-disciplined management area.

The Tennessee Wildlife Resources Agency (TWRA), under a license contract with the Corps of Engineers, manages the Barkley Waterfowl Management Area. In addition, the TWRA has made application for approximately 4,450 acres within the project (in addition to the 3,608 acres presently licensed) for the administration of hunting rights only.

The Kentucky Department of Fish and Wildlife Resources (KFWR) maintains two waterfowl refuge areas on a license basis, both of them entirely water based.

In addition to the state wildlife programs, two separate wildlife management programs are conducted on Lake Barkley, one by the Department of the Interior for the Cross Creeks National Wildlife Refuge and the other by Tennessee Valley Authority for the Bear Creek Waterfowl Demonstration Area. The TVA also maintains a refuge-resting area at Crooked Creek Bay in Kentucky, where waterfowl hunting is not permitted.

The wildlife lands on Lake Barkley that are not outgranted are managed by the Corps for both consumptive and nonconsumptive uses. Detailed annual plans for these areas are contained in Appendix B-D.

Bear Creek Waterfowl Management Area

The Tennessee Valley Authority (TVA) has been granted the use of approximately 689.4 acres by Letter of No Objection dated December 9, 1966, for this demonstration waterfowl management area. The area is located on Bear Creek between Cumberland river mile 82.5 and 86 and is within the Land Between the Lakes Recreation Area. Intensive waterfowl management practices are being conducted on the entire area.

TVA dewateres and then farms approximately 350 acres (either directly or through a cooperative arrangement with local farmers) in an attempt to improve waterfowl

habitat. Much of this cropland is then flooded in the fall by pumping or through the use of stop-log structures (dams) to enhance waterfowl usage of the area.

The construction of a number of duck blinds is allowed on this management area. In the past, a total of 40 blind sites have been offered to the public by drawing, but during the 1980-81 hunting season, TVA offered fewer sites for seasonal blinds, while allowing a larger number of hunters to construct temporary (1-day) blinds.

Site #601 Barkley Waterfowl Management Area

Barkley Waterfowl Management Area is the largest state waterfowl management area located on Lake Barkley. It is managed by the Tennessee Wildlife Resources Agency and includes 3,608 acres.

This area, licensed from the Corps of Engineers, includes four sections of land and water stretching from the Dover area north to the Kentucky state line.

Each year approximately 1000 acres of management area land are farmed under a cooperative (sharecrop) agreement with local farmers which requires that roughly 25% of the crop be left standing in the fields for use by wildlife. As an example of representative crop-plantings, in fiscal year 1978-79 there were 210 acres of corn, 733 acres of soybeans, 57 acres of milo, and 25 acres of wheat. In the future, TWRA is planning to expand their wheat-planting program at Saline Creek to attract more geese to the management area.

One month prior to the beginning of each waterfowl hunting season, TWRA initiates a pumping program in the Dover Bottoms sector of the management area as a means for for flooding a substantial portion of cropland there to enhance waterfowl usage of the area.

During the 1980-81 waterfowl hunting season, the TWRA had a total of 27 fixed blind sites in the Dover Bottom area, and there were 10 more located in the Saline Creek area. The granting of annual permits for each of these blind sites is accomplished each year through a limited drawing.

The section of management area which is located between the mouth of Saline Creek and the Kentucky State Line is open to hunting throughout the waterfowl season. However, elsewhere in the management area hunting is restricted to four days per week during the waterfowl season.

Site #717 Cross Creeks National Wildlife Refuge

The Cross Creeks National Wildlife Refuge lies along the Cumberland River for a distance of about 10 miles between the towns of Dover on the north and Cumberland City on the south. Rolling hills and high rocky bluffs border the rich bottomlands that are the heart of the refuge. Deciduous woodland makes up one-fourth of the 9,892 acres of land. The remainder is equally but not continuously divided between open water and cultivated fields, which produce an ideal topographic pattern for migratory waterfowl and other water birds. Six public use areas providing boating access are available. The Corps transferred 8,777 fee acres to the Department of Interior for the refuge by Public Land Order 4560 signed 27 December, 1968, making effective the Memorandum of Understanding dated 9 November, 1962, retaining an easement over 4,299 acres.

The location of this area, which continues upstream from Dover for eleven miles along the reservoir (Cumberland River Miles 91 to 102) makes it easily accessible. Current public use is about 20,000 people per year, consisting mostly of fishers and observers of wildlife. Hunting is not permitted within the refuge.

The major focus of the refuge is to provide habitat for migratory waterfowl. During winter months, up to 15,000 geese and 75,000 ducks of fifteen species rest and feed here. The U.S. Fish and Wildlife Service manages 1,700 acres of the refuge by producing wildlife food on a share crop basis with local farmers. There are eighteen sub-impoundments of feeder creeks here. Eight of these are deep enough to be used for recreational fishing.

The plan for the refuge indicates continued fishing and boating while maintaining the no hunting policy. Greater emphasis on providing wildlife diversity and protection of unique habitats and endangered species is also planned. Current visitation is about 20,000, mostly fishermen and wildlife observers. The public use program is to be expanded to handle an additional 88,000 use days per year. The major emphasis of this use will be increased environmental education, interpretation, and wildlife/wildlands recreation.

This involves construction of a visitor station, a wildlife observation trail and tower, an access road with parking, and rehabilitation by staff of several boat accesses. There are plans to increase the staff with the addition of a full-time interpretive specialist and a part-time receptionist.

These developments should be beneficial to the Corps operated properties on Lake Barkley, by providing significantly improved opportunities for environmental awareness. Concentrations of wildlife during the off-seasons may provide increased tourist attraction during those off-peak times that will affect adjacent stay-use facilities.

Site #602 Islands Wildlife Management Area

The Kentucky Department of Fish and Wildlife Resources maintains this area which is entirely waterfowl oriented. It consists of the islands between Cumberland River mile 51 and 57 between the channel and the west bank. At present, hunting is not permitted in this area.

Site #603 Levee Waterfowl Refuge Area

This 439 acre refuge area is also maintained by the Kentucky Department of Fish and Wildlife Resources. The area is surrounded by a dike in the midst of the lake between Cumberland River mile 68.5 and 70.3. The Levee Waterfowl Refuge Area, also known as the "Duck Cafeteria", is visible from the private properties along the lake shore southwest of Donaldson Creek Launching Area. Its main function is as a duck feeding habitat, with hunting not permitted.

7.09 Schedule of Development

(Refer to individual site discussions); see Table 7.5.

Phase I (Improvement/Modifications) Ongoing

1 — Internal reorganization of roads, parking, and ramp approaches within existing recreation areas.

2 — Other improvement, i.e. landscaping, signing, etc., that will provide immediate visual and informational impacts.

Phase II (Minor Expansions) 1 - 5 years

1 — Improvement of existing facilities to meet current user needs on currently owned Corps lands.

2 — Relocation of existing facilities within existing recreation areas for economy and efficiency of operations and maintenance (camping and picnic units, see Table 7.6).

Phase III (Major Expansions/Aquisitions Future) Initiate as funds or sponsoring agencies become available.

1 — Expansion of facilities to meet future needs on existing and/or acquisition lands.

2 — Development of new facilities on newly acquired lands with non-federal sponsoring agency.

7.10 Cost Estimates

Cost estimates are based on 1981 price levels. The following tables indicate costs for each of the affected sites at Lake Barkley, and are shown for Near Future and Future implementation stages. No costs are included for improvements planned by concessionaires.

Parking Stalls *	(*includes stall, striping, and tire stop)
Camping**	(** includes complete site set-up)
Picnicking***	(*** includes table, pad, and site preparation)

Table 7.5
Schedule of Development

<u>Recreation/Camping/Picnic Areas</u>	<u>PHASE I</u> (ongoing)	<u>PHASE II</u> (near future)	<u>PHASE III</u> (future)
Tailwater Left Bank Recreation Area Site #101	<ul style="list-style-type: none"> - initiate mass planting @ parking areas and along the primary entry road. - Improve entry signs. 	<ul style="list-style-type: none"> - organize interpretive trail @ Visitor Center 	*
Tailwater Right Bank Recreation Area Site #102	<ul style="list-style-type: none"> - initiate mass plantings @ parking areas. 	<ul style="list-style-type: none"> - develop fishing pier for tailwater fishermen. 	*
Grand Rivers Recreation Area Site #103	<ul style="list-style-type: none"> - improve vehicular circulation and campground loop organization. 	<ul style="list-style-type: none"> - reorganize camp and picnic sites and trails. - add 15 picnic sites and 2 shelters. 	<ul style="list-style-type: none"> - develop beach and picnic areas. - construct ramp in picnic area.
Eureka Recreation Area Site #104	<ul style="list-style-type: none"> - lay out equestrian route. 	<ul style="list-style-type: none"> - convert 6 picnic sites to camp sites. - relocate parking area and ramp. - implement new swimming area. 	<ul style="list-style-type: none"> - expand campground to include new loops and 28 new sites.
Canal Camping Area Site #105	<ul style="list-style-type: none"> - improve trails in existing campgrounds. - initiate mass plantings for screening in future camping area. 	<ul style="list-style-type: none"> - relocate boat ramp nearest main channel. - add activity area and related trails. - 15 relocated campsites. 	<ul style="list-style-type: none"> - expand campground to include group camp areas. - add new modern camp loop and swimming area on south side of parcel. - complete trail system.
Boyd's Landing Recreation Area Site #108	<ul style="list-style-type: none"> - lay out equestrian trail route. 		*
Buzzard Rock Recreation Area Site #113	<ul style="list-style-type: none"> - initiate mass planting. - equestrian trail for future camp area. 		<ul style="list-style-type: none"> - develop hillside camp units and related facilities with non-federal sponsor.

Table 7.5
(continued)

<u>Recreation/Camping/Picnic Areas</u>	<u>PHASE I</u> <u>(ongoing)</u>	<u>PHASE II</u> <u>(near future)</u>	<u>PHASE III</u> <u>(future)</u>
Old Kuttawa Recreation Area Site #115	*	<ul style="list-style-type: none"> - add 11 relocated picnic sites and 1 shelter. - improve beach facility and parking area. - improve picnic area and related facilities. - add restroom. 	<ul style="list-style-type: none"> - add trail connection to overlook from beach area.
Eddyville Recreation Area Site #116	*	*	*
Eddy Creek Recreation Area Site #121	*	*	*
Hurricane Creek Camping Area Site #124	*	*	*
Rockcastle Recreation Area Site # 125	- upgrade beach.	- relocate picnic units.	- pave access roads.
Little River Recreation Area Site #129	*	*	*
Cadiz Recreation Area Site #130	*	<ul style="list-style-type: none"> - add 10 relocated picnic units. - add relocated shelter. 	<ul style="list-style-type: none"> - expand facilities to include tennic courts and ballfields.
Devils Elbow Recreation Area Site #134	- reorganize internal roads and parking.	<ul style="list-style-type: none"> - add 20 relocated camp sites. - convert existing walk-in camp units to become vehicle accessible. 	<ul style="list-style-type: none"> - expand camping by 12 sites related facilities.

Table 7.5
(continued)

<u>Recreation/Camping/Picnic Areas</u>	<u>PHASE I</u> (ongoing)	<u>PHASE II</u> (near future)	<u>PHASE III</u> (future)
Linton Creek Recreation Area Site #139	<ul style="list-style-type: none"> - initiate mass plantings for future picnic area. - remove camping related facilities. - reorganize roads. 	<ul style="list-style-type: none"> - add 5 relocated picnic sites and related facilities. 	*
Bumpus Mills Recreation Area Site #145	<ul style="list-style-type: none"> - reorganize existing internal roads and signage. - lay out hiking trail connection to Dry Creek. 	<ul style="list-style-type: none"> - add 34 relocated camp sites, loops, and related facilities. - convert 15 picnic to campsites. 	<ul style="list-style-type: none"> - develop interpretive facilities. - add 31 relocated camp sites and related facilities.
Guices Creek Recreation Area Site #158	*	<ul style="list-style-type: none"> - relocate 5 picnic facilities. - relocate and close existing 10 campsites. 	- relocate remaining facilities.
Blue Creek Recreation Area Site #149	*	<ul style="list-style-type: none"> - relocate all picnic sites. - relocate all campsites. 	*
Dyers Creek Recreation Area	*	*	- develop marina with non-federal sponsor.
Trice Landing Park Site #163	*	*	*
McGregor Park Site #164	*	*	*
Dover Picnic Area Site #166	*	- add 5 relocated picnic units.	

Table 7.5
(continued)

<u>Recreation/Camping/Picnic Areas</u>	<u>PHASE I</u> (ongoing)	<u>PHASE II</u> (near future)	<u>PHASE III</u> (future)
Port Prizer Point Recreation Area	- currently leased to concessionaire.	*	- develop new campground and related facilities.
<u>Proposed Future Recreation Facilities</u>			
Canal expansion (proposed) Site #105	*	- investigate acquisition alternatives.	- develop as campground with related facilities.
Dryden Creek expansion (proposed) Site #123	*	- investigate acquisition alternatives.	- develop a major camping, marine complex with non-federal sponsor aid.
Dry Creek Recreation Area (proposed) Site #141	- lay out hiking trail connection to Donaldson Creek and Bumpus Mills.	*	- develop primitive camp area and related facilities.
Clarksville Fairgrounds Park Site #504	*	- add Launching Area with local sponsor.	*
Clarksville Recreation Area Site #401	- development currently being planned by non-federal sponsor.	- Quasi-Public use group camping.	*
<u>Launching Areas</u>			
Hickman Creek Launching Area (proposed) Site #152	- organize area for interpretive uses and nature study.	- relocate 17 campsites, 20 picnic sites, shelter allocate to group use.	- potential to develop in cooperation with N.P.S. as extension of Fort Donelson National Battlefield.
Poplar Creek Launching Area Site #213	*	*	*

Table 7.5
(proposed)

<u>Launching Areas</u>	<u>PHASE I</u> (ongoing)	<u>PHASE II</u> (near future)	<u>PHASE III</u> (future)
Coleman Bridge Launching Area Site #220	*	*	*
Rivers End Launching Area Site #228	*	*	*
Calhoun Hill Launching Area Site #236	*	*	*
Donaldson Creek Launching Area Site #237	- lay out hiking trail connection to Dry Creek.	*	- convert car/trailer parking area to car parking area for campers. - develop primitive camp area.
Tobacco Port Launching Area Site #243	*	*	
Saline Creek Launching Area Site #245	*	*	
Rivers Bend Launching Area Site #255	*	- relocate all camping and picnicking facilities.	
Smiths Branch Launching Area Site #262	*	- relocate all picnic sites.	*
Cannon Springs Launching Area Site #323	- organize area for interpretive uses and nature study.	- relocate all picnic sites.	- develop as major camping and marine facility with related activities with non-federal sponsor.

Table 7.6
Summary of Picnic and Camping Units

Site	Camp Sites		Picnic Sites	
	Present Total (1980 RMS)	Proposed Changes	New Total	Present (1980 RMS)
Eureka	35	Convert 6 picnic sites to camp sites	41	6
Cannon Springs				
Canal	100	Add 15 relocated campsites	115	16
Blue Creek	10	Relocate all campsites	0	10
Rivers Bend	10	Relocate all campsites	0	5
Hickman Creek	17	Relocate all campsites	0	20
Guises Creek	10	Relocate all campsites	0	10
Smith Branch				10
Hematite	18	Convert 15 picnic sites to campsites, add 34 relocated campsites	67	5
Bumpus Mills				15
Old Kuttawa				
Rockcastle				25
Cadiz	21	Add 20 relocated campsites	41	2
Devils Elbow	44	No change	44	24
Grand Rivers				
Linton				
Dover	121	No change	121	9
ALL other sites	386		429	5
TOTAL				0
				55
				174

Summary of 1980 Total and Proposed Relocations

Present Totals (1980 RMS)	Totals - Proposed Relocations
386	429
217	174
603	603

Campsites
Picnic Sites
Total Sites

Table 7.7

TAILWATER
LEFTBANK RECREATION AREA
LAKE BARKLEY

PRELIMINARY COST ESTIMATE
(1981 Price Base)

SITE #101

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00						
Comfort Stations								
Waterbox	Each	100,000.00						
Vault	Each	10,000.00						
Chemical toilets	Each	40,000.00						
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00			2640	18,400	2640	18,400.00
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.			2,000				2,000.00
Forestation & Landscaping	Acre	10,000.00	5	50,000			5	50,000.00

SUBTOTAL
CONTINGENCIES (10%)

10,400.00
7,000.00

ENGINEERING AND DESIGN (12%)

9,300.00

SUPERVISION AND ADMINISTRATION (8%)

6,200.00

TOTAL: Tailwater Left Bank Recreation Area (Site #101)

\$93,000.00

Table 7.7

TAILWATER
RIGHT BANK RECREATION AREA
LAKE BARKLEY

PRELIMINARY COST ESTIMATE
(1981 Price Base)

SITE #102

	Unit	Unit Cost	Near Future Units	Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00						
Comfort Station:								
Wash House	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.		1	10,000			1	10,000.00
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00	5	50,000			5	50,000.00

SUBTOTAL
CONTINGENCIES (10%)

60,000.00
6,000.00

ENGINEERING AND DESIGN (12%)

7,900.00

SUPERVISION AND ADMINISTRATION (8%)

5,280.00

TOTAL: Tailwater Right Bank Recreation Area (Site #102)

\$79,180.00

Table 7.7

GRAND RIVER RECREATION AREA
LAKE BARKLEY
SITE #103

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Units	Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved: 20'	L.F.	\$ 60.00	100	6,000			100	6,000.00
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00			65	26,000	65	26,000.00
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.				1	80,000	1	80,000.00
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00			1	28,000	1	28,000.00
Walk-In	Each	750.00	15	11,250			15	11,250.00
Picnicking***	Each	1,000.00						
	Each	500.00	9	4,500			9	4,500.00
Comfort Station:								
Waterborne	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00	1	100,000			1	100,000.00
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00			2	40,000	2	40,000.00
Bath House	Each	65,000.00			1	65,000	1	65,000.00
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.					70,000		70,000.00
Waste Treatment Plant	L.S.					10,000		10,000.00
Water Distribution System	L.S.					33,000		33,000.00
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.					15,000		15,000.00
Electrical Facilities	L.S.					10,000		10,000.00
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00			7200	43,200	7200	43,200.00
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00			3	30,000	3	30,000.00

SUBTOTAL
CONTINGENCIES (10%)

571,950.00
57,195.00

ENGINEERING AND DESIGN (12%)

75,500.00

SUPERVISION AND ADMINISTRATION (8%)

50,330.00

TOTAL: Grand River Recreation Area (Site #103)

754,975.00

Table 7.7

EUREKA RECREATION AREA
LAKE BARKLEY

PRELIMINARY COST ESTIMATE
(1981 Price Base)

SITE #104

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00			2400	115,200	2400	115,200.00
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00	60	12,000			60	12,000.00
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00	1	4,500			1	4,500.00
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.		1	20,000			1	20,000.00
Camping **:								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00			34	51,000	34	51,000.00
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00			1	28,000	1	28,000.00
Picnicking***	Each	1,000.00						
Comfort Stations:								
Waterborne	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilet	Each	40,000.00						
Wash Houses	Each	100,000.00			1	100,000	1	100,000.00
Water Hydrants	Each	1,500.00			1	1,500	1	1,500.00
Sanitary Dump Stations	Each	5,000.00			1	5,000	1	5,000.00
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00			1	1,000	1	1,000.00
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.					20,000		20,000.00
Waste Treatment Plant	L.S.					75,000		75,000.00
Water Distribution System	L.S.					8,000		8,000.00
Water Treatment Plant	L.S.					35,000		35,000.00
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.					10,000		10,000.00
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00	22,176	66,528			22,176	66,528.00
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.					1,500		1,500.00
Forestation & Landscaping	Acre	10,000.00			5	50,000	5	50,000.00

SUBTOTAL
CONTINGENCIES (10%)

604,228.00
60,422.80

ENGINEERING AND DESIGN (12%)

79,758.00

SUPERVISION AND ADMINISTRATION (8%)

53,172.00

TOTAL: Eureka Recreation Area (Site #104)

797,580.00

Table 7.7

CANAL CAMPING AREA
LAKE BARKLEY
SITE #105

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00			3960	237,600	3960	237,600.00
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00	350	2,450			350	2,450.00
Parking Stalls*								
Car-Paved	Each	400.00			56	22,400	56	22,400.00
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00	25	5,000			25	5,000.00
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00	1	4,500			1	4,500.00
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00			54	118,800	54	118,800.00
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00			15	22,500	15	22,500.00
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00			5	5,000	5	5,000.00
Comfort Station:								
Waterborne	Each	100,000.00	1	100,000			1	100,000.00
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00			2	200,000	2	200,000.00
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00	1	20,000			1	20,000.00
Bath House	Each	65,000.00			1	65,000	1	65,000.00
Fountains	Each	1,000.00			2	2,000	2	2,000.00
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.					175,000		175,000.00
Waste Treatment Plant	L.S.					75,000		75,000.00
Water Distribution System	L.S.					42,000		42,000.00
Water Treatment Plant	L.S.					35,000		35,000.00
Well (with hand pump)	L.S.					15,000		15,000.00
Water Storage	L.S.					15,000		15,000.00
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00	1	7,500	1	7,500	2	15,000.00
Scenic Overlook	Each	20,000.00			1	20,000	1	20,000.00
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00	2000	12,000	7600	45,600	9600	57,600.00
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00			440	8,800	440	8,800.00
Fishing Piers	L.S.							
Signs	L.S.					5,000		5,000.00
Forestation & Landscaping	Acre	10,000.00	5	50,000	5	50,000	10	100,000.00

SUBTOTAL	1,353,650.00
CONTINGENCIES (10%)	135,365.00
ENGINEERING AND DESIGN (12%)	178,682.00
SUPERVISION AND ADMINISTRATION (8%)	119,121.00
TOTAL: Canal Camping Area (Site #105)	1,786,818.00

Table 7.7

BOYD'S LANDING RECREATION AREA
LAKE BARKLEY

PRELIMINARY COST ESTIMATE

(1981 Price Base)

SITE #108

	Unit	Unit Cost	Near future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00						
Comfort Station:								
Waterborne	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00	1320	3,960			1320	3,960.00
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00						500.00

SUBTOTAL
CONTINGENCIES (10%)

4,460.00
446.00

ENGINEERING AND DESIGN (12%)

535.00

SUPERVISION AND ADMINISTRATION (8%)

392.00

TOTAL: Boyd's Landing Recreation Area (Site #108)

5,893.00

Table 7.7

OLD KATTAWA RECREATION AREA
LAKE BARKLEY

PRELIMINARY COST ESTIMATE

(1981 Price Base)

SITE #115

	Unit	Unit Cost	Near Units	Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved: 20'	L.F.	\$ 60.00			170	30,900	500	30,000.00
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00	40	16,000			40	16,000.00
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.		1	10,000			1	10,000.00
Camping	L.S.							
Camping **: Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00	11	11,000			11	11,000.00
Comfort Station								
Waterhouse	Each	100,000.00			1	100,000	1	100,000.00
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00	1	20,000			1	20,000.00
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.					40,000		40,000.00
Water Distribution System	L.S.					75,000		75,000.00
Water Treatment Plant	L.S.					12,000		12,000.00
Well (with hand pump)	L.S.							
Water Storage	L.S.					35,000		35,000.00
Electrical Facilities	L.S.					18,000		18,000.00
Play Areas	Each	7,500.00			1	7,500	1	7,500.00
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00			2640	15,840	2640	15,840.00
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.			500				500.00
Forestation & Landscaping	Acre	10,000.00	2	20,000			2	20,000.00

SUBTOTAL
CONTINGENCIES (10%)

410,840.00
41,084.00

ENGINEERING AND DESIGN (12%)

54,231.00

SUPERVISION AND ADMINISTRATION (8%)

36,154.00

TOTAL - Old Kattawa Recreation Area (Site #115)

542,309.00

Table 7.7

BUZZARD ROCK RECREATION AREA
LAKE BARKLEY

SITE #113

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00			1420	85,200	1420	85,200.00
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00			75	30,000	75	30,000.00
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Labins	Each	65,000.00						
Hillside Platform	Each	2,500.00			72	180,000	72	180,000.00
Entrance Station	Each	28,000.00			1	28,000	1	28,000.00
Picnicking***	Each	1,000.00			10	10,000	10	10,000.00
Comfort Station								
Waterhouse	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00			3	120,000	3	120,000.00
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00			6	120,000	6	120,000.00
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.					15,000		15,000.00
Waste Treatment Plant	L.S.					40,000		40,000.00
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.					7,000		7,000.00
Play Areas	Each	7,500.00			1	7,500		7,500.00
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00			6300	40,000	6300	40,000.00
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00	5280	15,840			5280	15,840.00
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.				2	17,500	2	17,500.00
Signs	L.S.		1	500	1	500	2	1,000.00
Forestation & Landscaping	Acre	10,000.00	5	50,000			5	50,000.00

SUBTOTAL
CONTINGENCIES (10%)

767,840.00
76,784.00

ENGINEERING AND DESIGN (12%)

101,355.00

SUPERVISION AND ADMINISTRATION (8%)

67,570.00

TOTAL: Buzzard Rock Recreation Area (Site #113)

1,013,549.00

Table 7.7

CADIZ RECREATION AREA
LAKE BARKLEY

PRELIMINARY COST ESTIMATE

(1981 Price Base)

(Ball field and Tennis Courts funded by outside agencies and the City of Cadiz.)

SITE #130

	Unit	Unit Cost	Near Future Units	Near Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00			34	13,600	34	13,600
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00	10	10,000			10	10,000.00
Comfort Station								
Waterborn	Each	100,000.00						
Well	Each	10,000.00						
Chemical Toilet	Each	40,000.00						
Wash House	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.							
Ball Fields (by others)	Each	18,000.00			2	36,000	2	36,000.00
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00			2600	52,000	2600	52,000.00
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00						

SUBTOTAL
CONTINGENCIES (10%)

111,600.00
11,160.00

ENGINEERING AND DESIGN (12%)

14,731.20

SUPERVISION AND ADMINISTRATION (8%)

9,014.40

TOTAL: Cadiz Recreation Area (Site #130)

147,311.60

Table 7.7

DEVIL'S ELBOW RECREATION AREA
LAKE BARKLEY

SITE #134

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00			3400	204,000	3400	204,000.00
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00			5	1,000	5	1,000.00
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00			32	70,400	32	70,400.00
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00						
Comfort Station:								
Waterborne	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00			1	100,000	1	100,000.00
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00			1	5,000	1	5,000.00
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00			1	15,000	1	15,000.00
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.					80,000		80,000.00
Water Distribution System	L.S.					100,000		100,000.00
Water Treatment Plant	L.S.					20,000		20,000.00
Well (with hand pump)	L.S.					35,000		35,000.00
Water Storage	L.S.							
Electrical Facilities	L.S.					15,000		15,000.00
Play Areas	Each	7,500.00			2	15,000	2	15,000.00
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00			330	6,600	330	6,600.00
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00						

SUBTOTAL
CONTINGENCIES (10%)

667,000.00
66,700.00

ENGINEERING AND DESIGN (12%)

80,044.00

SUPERVISION AND ADMINISTRATION (8%)

58,696.00

TOTAL: Devil's Elbow Recreation Area (Site #134)

880,440.00

Table 7.7

ROCK CASTLE RECREATION AREA
LAKE BARKLEY

PRELIMINARY COST ESTIMATE
(1981 Price Base)

SITE #125

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Ramps	Each	22,000.00						
Remove Boat Launching Ramps	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.		1	5,000			1	5,000.00
Camping	L.S.							
Camping **								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00	3	3,000			3	3,000.00
Comfort Station								
Waterborn	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilet	Each	40,000.00						
Wash Houses	Each	100,000.00						
Water Hydrant	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00						

SUBTOTAL
CONTINGENCIES (10%)

8,000.00
800.00

ENGINEERING AND DESIGN (12%)

1,056.00

SUPERVISION AND ADMINISTRATION (8%)

704.00

TOTAL: Rock Castle Recreation Area (Site #125)

10,560.00

Table 7.7

DONALDSON CREEK LAUNCHING AREA
LAKE BARKLEY
SITE #237

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Convert Car from Car/Trailer	Each	100.00			10	1,000	10	1,000.00
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00	12	6,000			12	6,000.00
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00						
Comfort Station:								
Waterborne	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00			3	120,000	3	120,000.00
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.				2	10,000	2	10,000.00
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking (to Dry Creek)	Mile	12.00	(allow)	150,000				150,000.00
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00						

SUBTOTAL	287,000.00
CONTINGENCIES (10%)	28,700.00
ENGINEERING AND DESIGN (12%)	37,884.00
SUPERVISION AND ADMINISTRATION (8%)	25,256.00
TOTAL: Donaldson Creek Launching Area (Site #237)	378,840.00

Table 7.7

LINTON RECREATION AREA
LAKE BARKLEY
SITE #139

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00	666	4,662			666	4,662.00
Parking Stalls*								
Car-Paved	Each	400.00	20	8,000			20	8,000.00
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00	5	5,000			5	5,000.00
Comfort Station:								
Waterbroom	Each	100,000.00	1	100,000			1	100,000.00
Vault	Each	10,000.00	1	2,000			1	2,000.00
Chemical Toilets	Each	40,000.00	(remove)					
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.			35,700				35,000.00
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.			7,000				7,000.00
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00	2	20,000			2	20,000.00

SUBTOTAL	181,662.00
CONTINGENCIES (10%)	18,166.00
ENGINEERING AND DESIGN (12%)	23,799.00
SUPERVISION AND ADMINISTRATION (8%)	15,986.00
TOTAL: Linton Recreation Area (Site #134)	239,793.00

Table 7.7

DOVER PICNIC AREA
LAKE BARKLEY
SITE #166

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future Cost		Future Cost		Total Cost	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **: Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00	5	5,000			5	5,000.00
Comfort Station:								
Waterbury	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00						

SUBTOTAL
CONTINGENCIES (10%)

5,000.00
500.00

ENGINEERING AND DESIGN (12%)

660.00

SUPERVISION AND ADMINISTRATION (8%)

440.00

TOTAL: Dover Picnic Area (Site #166)

6,600.00

Table 7.7

BLUE CREEK RECREATION AREA
LAKE BARKLEY
SITE #149

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future Cost		Future Cost		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00	1400	9,800			1400	9,800.00
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Abandonment of campsites	Each	400.00	10	4,000			10	4,000.00
Picnicking***	Each	1,000.00						
Abandonment	Each	300.00	5	1,500	5	1,500	10	3,000.00
Comfort Station								
Waterphone	Each	100,000.00						
Vault	Each	10,000.00	2	4,000			2	4,000.00
Chemical Toilets	Each	40,000.00	(remove)				(remove)	
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00						

SUBTOTAL	20,800.00
CONTINGENCIES (10%)	2,080.00
ENGINEERING AND DESIGN (12%)	2,746.00
SUPERVISION AND ADMINISTRATION (8%)	1,830.00
TOTAL: Blue Creek Recreation Area (Site #149)	27,456.00

Table 7.7

RIVERS BEND LAUNCHING AREA
LAKE BARKLEY

SITE #255

PRELIMINARY COST ESTIMATE

(1981 Price Base)

	Unit	Unit Cost	Year	Future	Future	Future	Total
			Units	Cost	Units	Cost	Cost
Road							
Paved: 20'	L.F.	\$ 60.00					
18'	L.F.	48.00					
12'	L.F.	35.00					
Resurfaced: 20'	S.Y.	10.00					
Abandonment	L.F.	7.00	3000	21,000			21,000.00
Parking Stalls*							
Car-Paved	Each	400.00					
Car/Trailer-Paved	Each	550.00					
Abandonment	Each	200.00					
Boat Launching Lanes	Each	22,000.00					
Remove Boat Launching Lanes	Each	4,500.00					
Courtesy Pier	Each	2,000.00					
Boat Mooring Area	L.S.						
Beaches: Public	L.S.						
Camping	L.S.						
Camping **							
Modern**	Each	2,200.00					
Intermediate	Each	1,500.00					
Primitive	Each	500.00					
Group	Each	1,500.00					
Cabins	Each	65,000.00					
Hillside Platforms	Each	2,500.00					
Entrance Station	Each	28,000.00					
Abandonment of campsites	Each	400.00	10	4,000			4,000.00
Picnicking**	Each	1,000.00	5	1,500			1,500.00
Abandonment	Each	300.00					
Comfort Stations							
Waterborne	Each	100,000.00					
Vault	Each	10,000.00					
Chemical Toilets	Each	40,000.00					
Marsh Houses	Each	100,000.00					
Water Hydrant	Each	1,500.00					
Sanitary Dump Station	Each	5,000.00					
Picnic Shelters	Each	20,000.00					
Bath House	Each	65,000.00					
Fountains	Each	1,000.00					
Fish Cleaning Station	Each	15,000.00					
Sewage Collection System	L.S.						
Waste Treatment Plant	L.S.						
Water Distribution System	L.S.						
Water Treatment Plant	L.S.						
Well (with hand pump)	L.S.						
Water Storage	L.S.						
Electrical Facilities	L.S.						
Play Areas	Each	7,500.00					
Scenic Overlook	Each	20,000.00					
Maintenance Area	L.S.						
Trails:							
Hiking	L.F.	6.00					
Interpretive	L.F.	7.00					
Equestrian	L.F.	3.00					
Multipurpose Court	S.Y.	20.00					
Fishing Piers	L.S.						
Signs	L.S.						
Forestation & Landscaping	Acre	10,000.00					

SUBTOTAL
CONTINGENCIES (10%)

26,500.00
2,650.00

ENGINEERING AND DESIGN (12%)

3,498.00

SUPERVISION AND ADMINISTRATION (8%)

2,332.00

TOTAL: Rivers Bend Launching Area (Site #225)

34,980.00

Table 7.7

GUICES CREEK RECREATION AREA
LAKE BARKLEY

SITE #158

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future Units	Near Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved 20	L.F.	\$ 60.00						
1K	L.F.	48.00						
1/2	L.F.	35.00						
Resurfacing 1/2	S.Y.	10.00						
Abandonment	L.F.	7.00	3,950	26,950			3,950	26,950.00
Parking Structure								
Each	Each	400.00						
Each	Each	550.00						
Each	Each	200.00						
Each	Each	22,000.00						
Each	Each	4,500.00						
Each	Each	2,000.00						
Each	L.S.							
Each	S							
Each	S							
Each	Each	2,200.00						
Each	Each	1,500.00						
Each	Each	500.00						
Each	Each	1,500.00						
Each	Each	65,000.00						
Each	Each	2,500.00						
Each	Each	28,000.00						
Each	Each	400.00	10	4,000			10	4,000.00
Each	Each	1,000.00						
Each	Each	300.00	5	1,500	5	1,500	10	3,000.00
Each	Each	100,000.00						
Each	Each	10,000.00	1	2,000			1	2,000.00
Each	Each	40,000.00	(remove)				(remove)	
Each	Each	100,000.00						
Each	Each	1,500.00						
Each	Each	5,000.00						
Each	Each	20,000.00						
Each	Each	65,000.00						
Each	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Water Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00						

SUBTOTAL	35,950.00
CONTINGENCIES (10%)	3,595.00
ENGINEERING AND DESIGN (12%)	4,745.00
SUPERVISION AND ADMINISTRATION (8%)	3,164.00
TOTAL: Guices Creek Recreation Area (Site #158)	47,454.00

Table 7.7

SMITHS BRANCH LAUNCHING AREA
LAKE BARKLEY

PRELIMINARY COST ESTIMATE
(1981 Price Base)

SITE #262

	Unit	Unit Cost	Near Future Units	Near Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00						
Abandonment	Each	300.00	10	3,000			10	3,000.00
Comfort Station:								
Restroom	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multi-purpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,600.00						

SUBTOTAL
CONTINGENCIES (10%)

3,000.00
300.00

ENGINEERING AND DESIGN (12%)

396.00

SUPERVISION AND ADMINISTRATION (8%)

259.20

TOTAL: Smiths Branch Launching Area

3,955.20

Table 7.7

CANNON SPRINGS LAUNCHING AREA
(FUTURE RECREATION AREA)

SITE #323

PRELIMINARY COST ESTIMATE

(1981 Price Base)

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	2.00						
Parking Stalls*								
Car-Paved	Each	400.00			50	20,000	50	20,000.00
Car/Trailer-Paved	Each	550.00			20	11,000	20	11,000.00
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping**								
Modern**	Each	2,200.00			50	110,000	50	110,000.00
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00			25	1,625,000	25	1,625,000.00
Hillside Platforms	Each	2,500.00			50	125,000	50	125,000.00
Entrance Station	Each	28,000.00			1	28,000	1	28,000.00
Picnicking***	Each	1,000.00						
Abandonment	Each	300.00	16	4,800			16	4,800.00
Comfort Station								
Waterborne	Each	100,000.00						
Vault	Each	10,000.00	1	2,000			1	2,000.00
Chemical Toilets	Each	40,000.00	(remove)				(remove)	
Wash Houses	Each	100,000.00			2	200,000	2	200,000.00
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00			1	5,000	1	5,000.00
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.					100,000		100,000.00
Waste Treatment Plant	L.S.					100,000		100,000.00
Water Distribution System	L.S.					15,000		15,000.00
Water Treatment Plant	L.S.					50,000		50,000.00
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.					15,000		15,000.00
Play Areas	Each	7,500.00			2	15,000	2	15,000.00
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00	14,200	85,200			14,200	85,200.00
Interpretive	L.F.	7.00	11,360	79,520			11,360	79,520.00
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.					17,000	2	17,000.00
Amphitheatre	L.S.				1	10,000	1	10,000.00
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00						

SUBTOTAL
CONTINGENCIES (10%)

2,617,520.00
261,752.00

ENGINEERING AND DESIGN (12%)

345,513.00

SUPERVISION AND ADMINISTRATION (8%)

230,342.00

TOTAL Cannon Springs Launching Area (Site #323)

3,455,127.00

Table 7.7

PORT PRIZER POINT RECREATION AREA
LAKE BARKLEY

PRELIMINARY COST ESTIMATE
(1981 Price Base)

SITE #324

	Unit	Unit Cost	Near Future Units	Near Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00			2840	136,320	2840	136,320.00
12'	L.F.	35.00						
Resurfaced: 20	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Tractor-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping ***								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00			40	60,000	40	60,000.00
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00						
Comfort Stations:								
Waterborns	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash basins	Each	100,000.00			1	100,000	1	100,000.00
Water Hydrants	Each	1,500.00						
Sanitary Dump Station	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00			1	1,000	1	1,000.00
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.					1,000		1,000.00
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.							
Water Treatment Plant	L.S.					1,000		1,000.00
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.					1,000		1,000.00
Play Areas	Each	7,500.00			1	7,500	1	7,500.00
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00						
Interpretive	L.F.	7.00						
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.							
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00						

SUBTOTAL
CONTINGENCIES (10%)

307,820.00
30,782.00

ENGINEERING AND DESIGN (12%)

40,632.00

SUPERVISION AND ADMINISTRATION (8%)

27,088.00

TOTAL: Port Prizer Point Recreation Area (Site #324)

406,322.00

Table 7.7

BUMPUS MILLS RECREATION AREA
LAKE BARKLEY

PRELIMINARY COST ESTIMATE
(1981 Price Base)

SITE #145

	Unit	Unit Cost	Near Future Units	Near Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00	6800	326,400			6800	326,400.00
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00	2200	22,000			2200	22,000.00
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00	24	9,600			24	9,600.00
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **:								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00	80	120,000			80	120,000.00
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00	1	28,000			1	28,000.00
Picnicking***	Each	1,000.00						
Abandonment	Each	300.00	15	4,500			15	4,500.00
Comfort Station								
Waterhouse	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Facilities	Each	40,000.00						
Wash Houses	Each	100,000.00	1	30,000			1	30,000.00
Water Hydrants	Each	1,500.00	(Add shower.)					
Sanitary Dump Stations	Each	5,000.00	1	5,000			1	5,000.00
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00	1	15,000			1	15,000.00
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.			35,000				35,000.00
Water Distribution System	L.S.							
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.			15,000				15,000.00
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00	2	15,000			2	15,000.00
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00	74,720	448,320	2840	19,880	74,720	448,320.00
Interpretive	L.F.	7.00					2,840	19,880.00
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.		2	17,000			2	17,000.00
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00	6	30,000	3	30,000	6	60,000.00

SUBTOTAL
CONTINGENCIES (10%)

1,170,700.00
117,070.00

ENGINEERING AND DESIGN (12%)

154,532.00

SUPERVISION AND ADMINISTRATION (8%)

103,022.00

TOTAL: Bumpus Mills Recreation Area (Site #145)

1,545,324.00

Table 7.7

HICKMAN CREEK LAUNCHING AREA
LAKE BARKLEY
(FUTURE RECREATION AREA)

PRELIMINARY COST ESTIMATE
(1981 Price Base)

SITE #152

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00			2000	96,000	2000	96,000.00
12'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00						
Car/Trailer Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lane	Each	22,000.00						
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping **								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00			50	75,000	50	75,000.00
Cabins	Each	65,000.00						
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00						
Comfort Stations								
Waterborne	Each	100,000.00						
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00			1	100,000	1	100,000.00
Water Hydrants	Each	1,500.00			1	1,500	1	1,500.00
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00			1	1,000	1	1,000.00
Fish Cleaning Station	Each	15,000.00						
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.					15,000		15,000.00
Water Distribution System	L.S.					75,000		75,000.00
Water Treatment Plant	L.S.					10,000		10,000.00
Well (with hand pump)	L.S.							
Water Storage	L.S.							
Electrical Facilities	L.S.					15,000		15,000.00
Play Areas	Each	7,500.00			1	7,500	1	7,500.00
Scenic Overlook	Each	20,000.00			1	20,000	1	20,000.00
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00	3000	18,000	3000	18,000	6000	36,000.00
Interpretive	L.F.	7.00	1200	8,400	5280	36,960	6480	45,360.00
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.				1	8,500	1	8,500.00
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00				5,000		5,000.00

SUBTOTAL
CONTINGENCIES (10%)

510,860.00
51,086.00

ENGINEERING AND DESIGN (12%)

67,433.00

SUPERVISION AND ADMINISTRATION (8%)

44,955.00

TOTAL: Hickman Creek Launching Area (Site #152)

674,334.00

Table 7.7

DRYDEN CREEK (EXPANSION)
LAKE BARKLEY

PRELIMINARY COST ESTIMATE
(1981 Price Base)

SITE #123

	Unit	Unit Cost	Near Future Units	Near Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved: 200'	L.F.	\$ 60.00			8500	510,000	8500	510,000.00
100'	L.F.	48.00			6500	312,000	6500	312,000.00
120'	L.F.	35.00						
Resurfaced: 200'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00			80	32,000	80	32,000.00
Car/Trailer Paved	Each	550.00			60	33,000	60	33,000.00
Abandonment	Each	200.00						
Boat Launching Lanes	Each	22,000.00			2	44,000	2	44,000.00
Remove Boat Launching Lanes	Each	4,500.00						
Courtesy Pier	Each	2,000.00			1	2,000	1	2,000.00
Boat Mooring Area	L.S.				1	8,000	1	8,000.00
Beaches: Public	L.S.							
Camping	L.S.							
Camping **								
Modern**	Each	2,200.00			75	165,000	75	165,000.00
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00			10	650,000	10	650,000.00
Hillside Platforms	Each	2,500.00						
Entrance Station	Each	28,000.00			1	28,000	1	28,000.00
Picnicking***	Each	1,000.00			5	5,000	5	5,000.00
Comfort Station:								
Waterhouse	Each	100,000.00			1	100,000	1	100,000.00
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00			1	100,000	1	100,000.00
Water Hydrants	Each	1,500.00			2	3,000	2	3,000.00
Sanitary Dump Stations	Each	5,000.00			1	5,000	1	5,000.00
Picnic Shelters	Each	20,000.00			1	20,000	1	20,000.00
Bath House	Each	65,000.00						
Fountains	Each	1,000.00			2	2,000	2	2,000.00
Fish Cleaning Station	Each	15,000.00			1	15,000	1	15,000.00
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.					100,000		100,000.00
Water Distribution System	L.S.					35,000		35,000.00
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.							
Water Storage	L.S.				2	10,000	2	10,000.00
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00			1	7,500	1	7,500.00
Scenic Overlook	Each	20,000.00			1	20,000	1	20,000.00
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00			10,000	60,000	10,000	60,000.00
Interpretive	L.F.	7.00			1500	10,500	1500	10,500.00
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00			1600	32,000	1600	32,000.00
Fishing Piers	L.S.				2	17,500	2	17,500.00
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00			4	40,000	4	40,000.00

SUBTOTAL
CONTINGENCIES (10%)

2,376,500.00
237,650.00

ENGINEERING AND DESIGN (12%)

313,698.00

SUPERVISION AND ADMINISTRATION (8%)

209,132.00

TOTAL: Dryden Creek (Expansion) (Site #123)

1,131,980.00

Table 7.7

DRY CREEK
LAKE BARKLEY
SITE #141

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future		Future		Total	
			Units	Cost	Units	Cost	Units	Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00			7500	360,000	7500	360,000.00
10'	L.F.	35.00						
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Paved	Each	400.00			40	16,000	40	16,000.00
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lane	Each	22,000.00						
Remove Boat Launching Ramps	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping ***								
Modern**	Each	2,200.00						
Intermediate	Each	1,500.00			25	12,500	25	12,500.00
Primitive	Each	500.00			50	75,000	50	75,000.00
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Hillside Platform	Each	2,500.00						
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00						
Confort Station								
Waterborne	Each	100,000.00						
Vault	Each	10,000.00			4	40,000	4	40,000.00
Chemical Toilets	Each	40,000.00						
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00			2	40,000	2	40,000.00
Bath House	Each	65,000.00						
Fountains	Each	1,000.00			2	2,000	2	2,000.00
Fish Cleaning Station	Each	15,000.00			1	15,000	1	15,000.00
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.							
Water Distribution System	L.S.					10,000		10,000.00
Water Treatment Plant	L.S.					35,000		35,000.00
Well (with hand pump)	L.S.				2	10,000	2	10,000.00
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00			1	7,500	1	7,500.00
Scenic Overlook	Each	20,000.00			2	40,000	2	40,000.00
Maintenance Area	L.S.				1	10,000	1	10,000.00
Trails:								
Hiking	L.F.	6.00	5280	31,680	5280	31,680	10560	63,360.00
Interpretive	L.F.	7.00	1300	9,100	5280	36,960	6580	46,060.00
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00						
Fishing Piers	L.S.				2	17,500		17,500.00
Signs	L.S.					10,000		10,000.00
Forestation & Landscaping	Acre	10,000.00						

SUBTOTAL
CONTINGENCIES (10%)

809,920.00
80,992.00

ENGINEERING AND DESIGN (12%)

106,909.00

SUPERVISION AND ADMINISTRATION (8%)

71,273.00

TOTAL: Dry Creek (Site #141)

1,069,094.00

Table 7.7

CANAL (EXPANSION)
LAKE BARKLEY

SITE #105

PRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future Units	Near Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved: 20'	L.F.	\$ 60.00						
18'	L.F.	48.00						
7.7'	L.F.	35.00			605	290,100	605	21,135.00
Resurfaced: 20'	S.Y.	10.00						
Abandonment	L.F.	7.00						
Parking Stalls*								
Car-Park	Each	400.00			30	12,000	30	12,000.00
Car/Trailer-Paved	Each	550.00						
Abandonment	Each	200.00						
Boat Launching Lane	Each	22,000.00						
Remove Boat Launching Lane	Each	4,500.00						
Courtesy Pier	Each	2,000.00						
Boat Mooring Area	L.S.							
Beaches: Public	L.S.							
Camping	L.S.							
Camping ***								
Moderate	Each	2,200.00						
Intermediate	Each	1,500.00						
Primitive	Each	500.00						
Group	Each	1,500.00						
Cabins	Each	65,000.00						
Outfitter Platforms	Each	2,500.00			30	75,000	30	75,000.00
Entrance Station	Each	28,000.00						
Picnicking***	Each	1,000.00			5	5,000	5	5,000.00
Compost Station								
Waterborne	Each	100,000.00			1	100,000	1	100,000.00
Vault	Each	10,000.00						
Chemical Toilets	Each	40,000.00			2	80,000	2	80,000.00
Wash Houses	Each	100,000.00						
Water Hydrants	Each	1,500.00						
Sanitary Dump Stations	Each	5,000.00						
Picnic Shelters	Each	20,000.00						
Bath House	Each	65,000.00						
Fountains	Each	1,000.00						
Fish Cleaning Station	Each	15,000.00			1	15,000	1	15,000.00
Sewage Collection System	L.S.							
Waste Treatment Plant	L.S.					80,000		80,000.00
Water Distribution System	L.S.					15,000		15,000.00
Water Treatment Plant	L.S.							
Well (with hand pump)	L.S.				1	5,000	1	5,000.00
Water Storage	L.S.							
Electrical Facilities	L.S.							
Play Areas	Each	7,500.00						
Scenic Overlook	Each	20,000.00						
Maintenance Area	L.S.							
Trails:								
Hiking	L.F.	6.00			5280	31,680	5280	31,680.00
Interpretive	L.F.	7.00			1300	9,100	1300	9,100.00
Equestrian	L.F.	3.00						
Multipurpose Court	S.Y.	20.00			1600	32,000	1600	32,000.00
Fishing Piers	L.S.				2	17,500	2	17,500.00
Signs	L.S.							
Forestation & Landscaping	Acre	10,000.00			4	40,000	4	40,000.00

SUBTOTAL
CONTINGENCIES (10%)

ENGINEERING AND DESIGN (12%)

SUPERVISION AND ADMINISTRATION (8%)

TOTAL - Canal (Expansion) (Site #105)

804,000.00
80,400.00

100,480.00

80,480.00

1,004,880.00

Table 7.7

SUMMARY
ALL SITES ESTIMATEDPRELIMINARY COST ESTIMATE
(1981 Price Base)

	Unit	Unit Cost	Near Future Units	Near Future Cost	Future Units	Future Cost	Total Units	Total Cost
Road								
Paved 20'	L.F.	\$ 65.00	100	6,500	17,780	1,166,700	17,880	1,173,200.00
18'	L.F.	48.00	6800	326,400	27,290	1,309,920	34,090	1,636,320.00
12'	L.F.	35.00						
Resurfaced 20'	S.Y.	10.00	2200	22,000			2,200	22,000.00
Abandonment	L.F.	7.00	9266	64,862			9,266	64,862.00
Parking Stalls*								
Car-Paved	Each	400.00	84	33,600	430	172,000	514	205,600.00
Car/Trailer-Paved	Each	550.00			80	44,000	80	44,000.00
Abandonment	Each	200.00	85	17,000	5	1,000	90	18,000.00
Convert Car from Car/Trailer	Each	100.00			10	1,000	10	1,000.00
Boat Launching Lanes	Each	22,000.00			2	44,000	2	44,000.00
Remove Boat Launching Lanes	Each	4,500.00	2	9,000			2	9,000.00
Courtesy Pier	Each	2,000.00			1	2,000	1	2,000.00
Boat Mooring Area	L.S.				1	8,000	1	8,000.00
Beaches: Public	L.S.		2	15,000			2	15,000.00
Camping	L.S.		1	20,000	1	80,000	2	95,000.00
Camping ***								
Modern***	Each	2,200.00			211	464,200	211	464,200.00
Intermediate	Each	1,500.00	80	120,000	71	111,000	151	231,000.00
Primitive	Each	500.00	12	6,000	25	12,500	37	18,500.00
Group	Each	1,500.00			115	172,500	115	172,500.00
Cabins	Each	65,000.00			35	2,275,000	35	2,275,000.00
Hillside Platforms	Each	2,500.00			152	380,000	152	380,000.00
Entrance Station	Each	28,000.00	1	28,000	4	112,000	5	140,000.00
Walk-In	Each	750.00	15	11,250			15	11,250.00
Abandonment of Campsites	Each	4,000.00	30	12,000			30	12,000.00
Picnicking ***	Each	1,000.00	34	34,000	25	25,000	59	59,000.00
Abandonment of sites	Each	300.00	56	16,800	10	3,000	66	19,800.00
Relocate sites	Each	500.00	9	4,500			9	4,500.00
Comfort Station								
Waterhouse	Each	100,000.00	2	200,000	3	300,000	5	500,000.00
Vault	Each	10,000.00			4	40,000	4	40,000.00
Abandonment	Each	2,000.00	5	10,000			5	10,000.00
Chemical Toilets	Each	40,000.00			8	320,000	8	320,000.00
Wash House	Each	100,000.00	1	100,000	9	900,000	10	1,000,000.00
Add Shower	L.S.		1	30,000			1	30,000.00
Water Hydrants	Each	1,500.00			4	6,000	4	6,000.00
Sanitary Pump Stations	Each	5,000.00	1	5,000	5	25,000	6	30,000.00
Picnic Shelters	Each	20,000.00	2	40,000	11	220,000	13	260,000.00
Bath House	Each	65,000.00			2	130,000	2	130,000.00
Fountains	Each	1,000.00			9	9,000	9	9,000.00
Fish Cleaning Station	Each	15,000.00	1	15,000	4	60,000	5	75,000.00
Swage Collection System	L.S.					696,000		696,000.00
Waste Treatment Plant	L.S.					550,000		550,000.00
Water Distribution System	L.S.			35,000		200,000		235,000.00
Water Treatment Plant	L.S.			35,000		191,000		226,000.00
Well (with hand pump)	L.S.				5	25,000	5	25,000.00
Water Storage	L.S.				2	75,000	2	75,000.00
Electrical Facilities	L.S.			37,000		76,000		113,000.00
Ball Fields (by others)	Each	18,000.00			2	36,000	2	36,000.00
Play Areas	Each	2,500.00	3	7,500	11	82,500	14	90,000.00
Scenic Overlook	Each	20,000.00			5	100,000	5	100,000.00
Maintenance Area	L.S.				1	10,000	1	10,000.00
Trails:								
Hiking	L.F.	6.00	94,200	565,200	47,800	286,800	146,480	852,000.00
To Dry Creek	Miles	(All-weather)	12	150,000			12	150,000.00
Interpretative	L.F.	7.00	13,860	97,020	18,840	131,000	32,700	228,000.00
Equestrian	L.F.	3.00	28,776	86,328			28,776	86,328.00
Multipurpose Court	S.Y.	20.00			4,970	99,400	4,970	99,400.00
Fishing Piers	L.S.		1	27,000	11	99,000	12	126,000.00
Amphitheatre	L.S.				1	10,000	1	10,000.00
Signs	L.S.			3,000				3,000.00
Forestation & Landscaping	Acre	10,000.00	27	270,000	24	240,000	51	510,000.00

SUBTOTAL		2,504,460		11,233,000		13,737,460.00
CONTINGENCIES (10%)		250,446		1,123,300		1,373,746.00
ENGINEERING AND DESIGN (12%)		330,589		1,482,756		1,813,345.00
SUPERVISION AND ADMINISTRATION (8%)		220,392		988,504		1,208,896.00
TOTALS		3,305,887		14,827,560		18,133,443.00

LAKE BARKLEY MASTER PLAN

CHAPTER 8 - Recreation and Natural Resources Management

8.01 Introduction

This section establishes the broad management guidelines and policies for the operation and management of the natural and recreational resources of Lake Barkley. It is not within the scope of this Master Plan Update to discuss the operation and maintenance of the Barkley Lock or Power Plant. Management plans that prescribe the specific administrative and operational procedures to be applied at the project level are included in the appendices (bound under separate cover) as follows:

Appendix A - Project Resource Management Plan

Appendices B & D combined - Forest, Fish, and Wildlife Management Plan

Appendix C - Fire Protection Plan

Appendix E - Project Safety Plan

Appendix F - Lakeshore Management Plan

8.02 Project Resource Management

8.02.01 General Policy and Objectives

The basic management objectives of the natural resources and outdoor recreation management program at Lake Barkley are as follows:

1 — Project lands will be managed and maintained in a manner which is consistent with the project land use allocations and which minimizes use conflicts;

2 — Sustained public utilization of project resources will be encouraged and accommodated up to the maximum carrying capacity consistent with aesthetic and ecological values;

3 — Private exclusive use of project resources will be minimized;

4 — Recreation sites and facilities will be managed and maintained at a high standard of appearance equal to that normally expected in public use areas. The maintenance of standards will provide safe and rewarding outdoor recreation experiences for the public;

5 — Changing technologies and user preferences will be considered in the provision of public services;

6 — The above policy objectives will be applied to project lands and resources administered by other public agencies and private concessionaires operating on Lake Barkley.

8.02.02 Staffing

The recreation and natural resource management program at Lake Barkley will be administered by the Nashville District Corps of Engineers through a Resource Manager and necessary support staff located at the field office. The Resource Manager will supervise the use, development, and management of lands and waters of the project areas to assure their sound use and preservation in the public interest.

8.02.03 Cooperative Relations and Public Involvement

In carrying out the complex management program at Lake Barkley, the Resource Manager will continuously coordinate and cooperate with the numerous federal, state, and local agencies, organizations, concessionaires, private groups, and individuals that have a role in the management of project resources.

8.02.04 Law Enforcement

The Resource Manager will enforce the rules and regulations under Title 36, Code of Federal Regulations, concerning use of project lands and waters. Because the Corps of Engineers maintains only proprietary jurisdiction at Lake Barkley, the enforcement of other laws and visitor protection will be the responsibility of local and state law enforcement agencies.

8.02.05 Outgranted Areas

The management and use of project lands and waters by an entity other than the Corps of Engineers must be authorized by real estate lease, license, or other outgrant, Department of the Army permit, or lakeshore use permit. The authorized uses of the outgranted areas will be controlled by the provisions of the outgrant or permit. Any changes or additions to facilities must be approved by the Corps of Engineers. The Resource Manager will be the Corps of Engineers' point of contact for all outgrants and permits at Lake Barkley, coordinating through the Corps' Real Estate Division.

8.02.06 Encroachments

The Resource Manager will maintain a surveillance program and will maintain a marked boundary line in order to minimize encroachments and damage to project resources. In addition, the Resource Manager will inspect the watershed surrounding Lake Barkley for violations of other laws regulated by the U. S. Department of the Army. Violations and encroachment will be eliminated through appropriate enforcement procedures or issuance of an appropriate outgrant when the circumstances merit such action.

8.02.07 Interpretive Services

An interpretive services and environmental education program will be carried out at Lake Barkley to accomplish the following objectives:

- 1 — To help the public formulate a land ethic and environmental consciousness;
- 2 — To tell the story of the purpose and operation of Lake Barkley;
- 3 — To enhance visitor experiences by interpreting the project and its related resources;
- 4 — To interpret land use and water resource management programs and policies;
- 5 — To provide environmental education opportunities and facilities for area students and educators.

8.02.08 Reduction of Operations and Maintenance

Management tools, such as temporary closures, reduction of mowing acreage and frequency, consolidation of facilities (intra- and inter-state), use of control gates with the collection of user fees, operation and maintenance activities by contract, and impact area reinforcement, will be practiced, to the maximum extent possible, in order to reduce the Corps' Operation and Maintenance commitment.

8.02.09 Management Plan

The specific guidelines and procedures by which the Resource Manager is to administer Lake Barkley and carry out the recreation program are contained in the Project Resource Management Plan (Appendix A, Lake Barkley Master Plan).

8.03 Forest Management

8.03.01 General Policy and Objectives

The basic management policies and objectives of the forest management program at Lake Barkley are as follows:

- 1 — Project forest lands will be managed to increase their values for recreation, wildlife habitat, and forest productivity; and to promote ecological diversity;
- 2 — Commercial timber production on a sustained yield basis may be practiced in selected compartments where practicable, but only when conservation, recreation, wildlife habitat and other uses are not adversely influenced.

3 - The removal of vegetation will be performed only with sound justification such as forest stand improvement and/or regeneration, disease or insect control, fire hazard reduction, removal for construction of recreational facilities, wildlife habitat improvement, or other specific essential uses.

8.03.02 Forest Products.

Forest products available for disposal will be utilized by the Corps of Engineers when practicable. Products not required for Corps of Engineers' use will be sold or made available for fire wood.

8.03.03 Natural Areas.

Designated natural areas or sensitive areas will be managed to preserve the desired ecological conditions. Construction activities within the areas will be limited to foot trails.

8.03.04 Management Plans.

Specific plans and prescriptions for managing forest lands are contained in the Forest, Fish, and Wildlife Management Plan (Appendix B-D, Lake Barkley Master Plan).

8.04 Fire Protection

8.04.01 General Policy and Objectives.

Policies for the prevention and suppression of wildfires on Lake Barkley are as follows:

- 1 — Wildfires will be prevented through public education and removing fire hazards;
- 2 — Properly trained and equipped personnel will be available on the Resource Manager's staff to fight wildfires;
- 3 — Wildfires on government property or private property will be suppressed when the wildfire threatens government property. An exception to this rule will be made when the fire presents no danger to public or private property and when the fire would be beneficial to project resources (for example, in the event of hazard reduction or wildlife habitat improvement).
- 4 — Management practices may include the use of prescribed fire as a management tool.

8.04.02 Cooperative Agreements

Even though the Resource Manager will maintain a fire suppression force, the Resource Manager will depend primarily on the state forestry agency for fire fighting assistance. Cooperative agreements to this effect will be maintained.

8.04.03 Management Plan

A specific plan for prevention, presuppression, and suppression of wildfires is included in the Fire Protection Plan (Appendix C, Lake Barkley Master Plan).

8.05 Fish and Wildlife Management

8.05.01 Objectives

The primary objectives of the fish and wildlife management program at Lake Barkley are as follows:

- 1 — To preserve, enhance, and maintain suitable habitat conditions necessary for fish and wildlife propagation;
- 2 — To provide recreational opportunities for both consumptive and non-consumptive use of fish and wildlife;
- 3 — To maintain optimum numbers of fish and wildlife populations;
- 4 — To manage the fish and wildlife resources to obtain maximum benefits commensurate with the primary purposes of the project;
- 5 — To solicit and encourage maximum local and state participation in the furtherance of wildlife and fisheries management programs.

8.05.02 General Policies

The general policies of the fish and wildlife management program at Lake Barkley are as follows:

- 1 — The states will be responsible for establishing fish and wildlife harvesting regulations, to include limits, seasons, equipment, etc;
- 2 — The states will generally be responsible for fisheries management;
- 3 — Lands not outgranted to others for fish and wildlife enhancement activities will be managed where appropriate for fish and wildlife by the Resource Manager.

8.05.03 Sensitive Species

Rare, threatened, and endangered species of wildlife, their related habitats, and plants found occurring on project lands will be protected and managed in consultation with the appropriate state or federal endangered species office.

8.05.04 Management Plan

Lists of species to be managed, specific management plans to be carried out by the Resource Manager and others, and guidelines for duck blind administration are contained in the Forest, Fish and Wildlife Management Plan (Appendix B-D, Lake Barkley Master Plan).

8.06 Safety Management

8.06.01 General Policy and Objectives

The basic management policies and objectives of the safety management program at Lake Barkley are as follows:

- 1 — To provide a safe environment for project personnel, contractors, and the public and to prevent damages to property from accidents and fire;
- 2 — Project personnel will receive proper training in first aid and safety practices. Contractors will be required to have similar training programs for their employees;
- 3 — Standard operating procedures will be outlined to provide safe conditions throughout the project area;
- 4 — Particular emphasis will be placed on implementing a public education program which emphasizes water safety;
- 5 — Protective clothing and equipment will be available and used for all work involving hazardous situations.

8.06.02 Search and Rescue

The Resource Manager will be responsible for recovering bodies of employees and for coordinating all rescue and recovery efforts. The primary responsibility for recovery of bodies of the general public is with the local Rescue Squad or Civil Defense unit.

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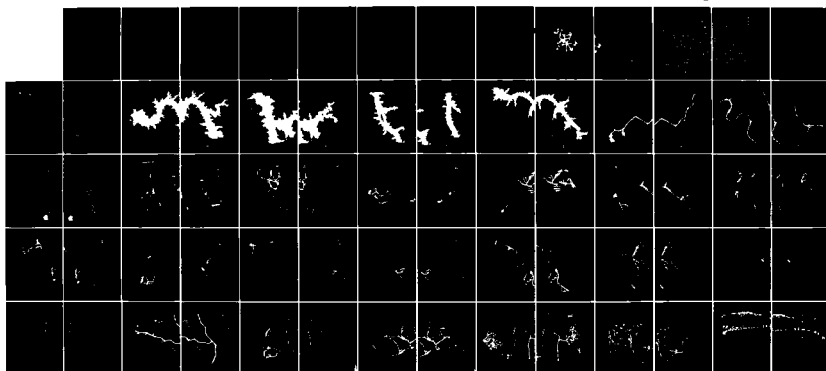
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DISTRICT JAN 83

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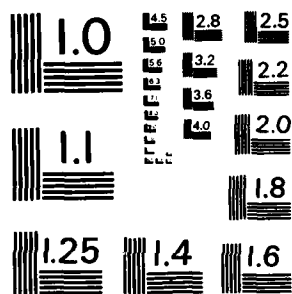
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8.06.03 Emergencies

The Resource Manager is the Emergency Project Manager for emergencies, such as floods, occurring at Lake Barkley.

8.06.04 Management Plan

Specific safety program procedures, including safety inspections and reporting requirements, are contained in the Project Safety Plan (Appendix E, Lake Barkley Master Plan).

8.07 Lakeshore Management

8.07.01 General Policy and Objectives

The basic management policies and objectives of the lakeshore management program at Lake Barkley are:

- 1 — The natural environmental and aesthetic qualities of the shoreline will be protected and restored, and the full use of the shoreline by the general public will be maintained;
- 2 — Boat owners will be encouraged to moor their boats at commercial marinas, utilize dry storage facilities off project lands, or trailer their boats to public launching areas;
- 3 — When private floating boat moorage facilities are desired, community moorage facilities will be encouraged to reduce proliferation of individual facilities;

4 — Exclusive private use of the shoreline will be limited in favor of conserving the natural environment of the shoreline for use by the general public.

8.07.02 Lakeshore Allocations

The entire lakeshore of Lake Barkley will be allocated within the classifications of limited development areas, public recreation areas, protected lakeshore areas, and prohibited access areas as described in ER 1130-2-406.

8.07.03 Lakeshore Use

The Resource Manager, by lakeshore use permit, may authorize private privileges such as moorage, mowing, and hand clipping, depending on the lakeshore allocation and other restrictions.

8.07.04 Management Plan

Specific guidelines for implementing the lakeshore management program at Lake Barkley, including lakeshore allocation maps and specific permit requirements and conditions, are contained in the Lakeshore Management Plan (Appendix F, Lake Barkley Master Plan).

8.07.05 Real Estate Instruments

(1) General

Commercial development activities, agricultural leases, and other activities involving use of project fee and easement lands, not requiring a lakeshore use permit, will be covered by a lease, license, easement, consent to easement

or other legal documents issued by the Real Estate Division. Applications for Real Estate outgrants will be submitted on ORN Form 236 (Permit Application) along with necessary plans and sketches and environmental evaluations where applicable. These changes in land form, when required for driveways, walks, etc., are permitted to individuals only on flowage easement lands. These permits are issued on a case-by-case basis and only when minor land form changes are necessary. Where fills involve placement of material in the lake, a Department of the Army Permit is required along with an easement from Real Estate.

Placement of structures (not for human habitation) on flowage easement lands may be permitted on a case-by-case bases through consents to easements so long as their placement does not interfere with the authorized purposes of the project.

(2) Department of the Army Permits

All work in navigable water is permitted by use of Department of the Army Permits (Section 10 and 404 permits) in addition to any necessary Real Estate Instruments. Included activities would be riprapping of the shoreline, dredging, outfall lines, intake structures, launching ramps, breakwaters, pipe and powerline crossings, fills, disposal of dredged material, and non-floating structures. Segment sheet sketches, an environmental evaluation and Disposition Form are prepared by the Ranger whose area the proposed work is to be in, and submitted with the application (ENG Form 4345) to the Regulatory Functions Branch, through the Recreation-Resource Management Branch.

(3) Human Habitation

Permitted floating moorage facilities and any houseboat, cabin cruiser, or other vessel regularly moored thereto shall not be used for human habitation or in any manner which gives the appearance of converting the public property, on which the facility is located, to private, exclusive use.

Vessels or other watercraft while moored in commercial facilities, community or corporate docks, or at any fixed or permanent mooring point may only be used for overnight occupancy when such use is incidental to recreational boating. Vessels or other watercraft are not to be used as a place of habitation or residence.

(4) Commercial Marinas

Floating facilities operated by commercial marinas will not be affected by this Lakeshore Management Plan. The development and management of these operations are effectively controlled by existing Real Estate regulations and policies. The commercial marinas on fee land operate under lease contracts with the Secretary of the Army. All structures including floating and land-based facilities, as well as other activities, are subject to the terms and conditions of the lease contract. The services and storage facilities provided by commercial operators help reduce the need for individually owned docks along the shoreline, and should be encouraged as demand arises.

LAKE BARKLEY MASTER PLAN

Chapter 9 - Conclusions and Recommendations

9.01 Conclusions

The Lake Barkley project has a wide range of recreation, fish and wildlife, and cultural resources and enjoys an excellent location within several hours' drive of many metropolitan areas. Annual visitations, currently over five million, are projected to continue to increase, requiring additional facilities be provided. The project exhibits distinctly different resources in the lower, middle, and upper sections which have been appropriately classified into three zones. Application of a conservative acquisition policy and the development of numerous small recreation areas have resulted in many management problems. Consolidation by relocation and conversion of certain facilities from areas not currently being used to capacity is necessary to improve operational efficiency and to conform to reduced budgets. Current and estimated future public use of the project exceeds the overall capacity of the existing facilities. Improvements at larger existing sites and future sites are proposed to accommodate what will become an unsatisfied demand. Non-Federal local and state sponsors will be required to accomplish these developments. Interest and cooperation was expressed by the state and local governments during preparation of this plan, but direct, Non-Federal participation in any extensive developments is unlikely in the near future, due to their respective budget constraints.

9.02 Recommendations

We recommend this updated Master Plan be approved as a guide to the continued development and management of the Lake Barkley project. The site plans contained herein should be approved for use in implementing Phase I and Phase II proposals. We further recommend that the proposals, including site plans, in Phase III be approved as the basis for further detailed planning and design as cost-sharing sponsors are indentified.

The following paragraphs consolidate and summarize the site and subject specific recommendations contained in the report and respond to the above conclusions:

9.02.01 Consolidations

Phase I consolidations include closures, partial closures, and minor relocations and rearrangements. These actions will be accomplished within the next one to two years. Within this phase, four areas will be permanently closed and six areas reduced to launching only. Phase II consolidations require greater efforts and expense and will be implemented as funding allows over an estimated five-year period. Within this phase, picnic facilities and campsites from eight closed areas will be relocated to enlarge existing operations at five other areas. Phase III undertakings are longer range and will require cost-sharing sponsors. Implementation of these recommendations involves major expansions at existing areas, land acquisitions, and the development of new recreation areas.

9.02.02 Non Federal Sponsorship

Greater continued efforts are recommended to secure local sponsors by active contact and cooperation with all local and state governments. The possibility of switching management of potential revenue producing areas operated by the Corps to commercial concessionaires should also be considered.

9.02.03 Coordination

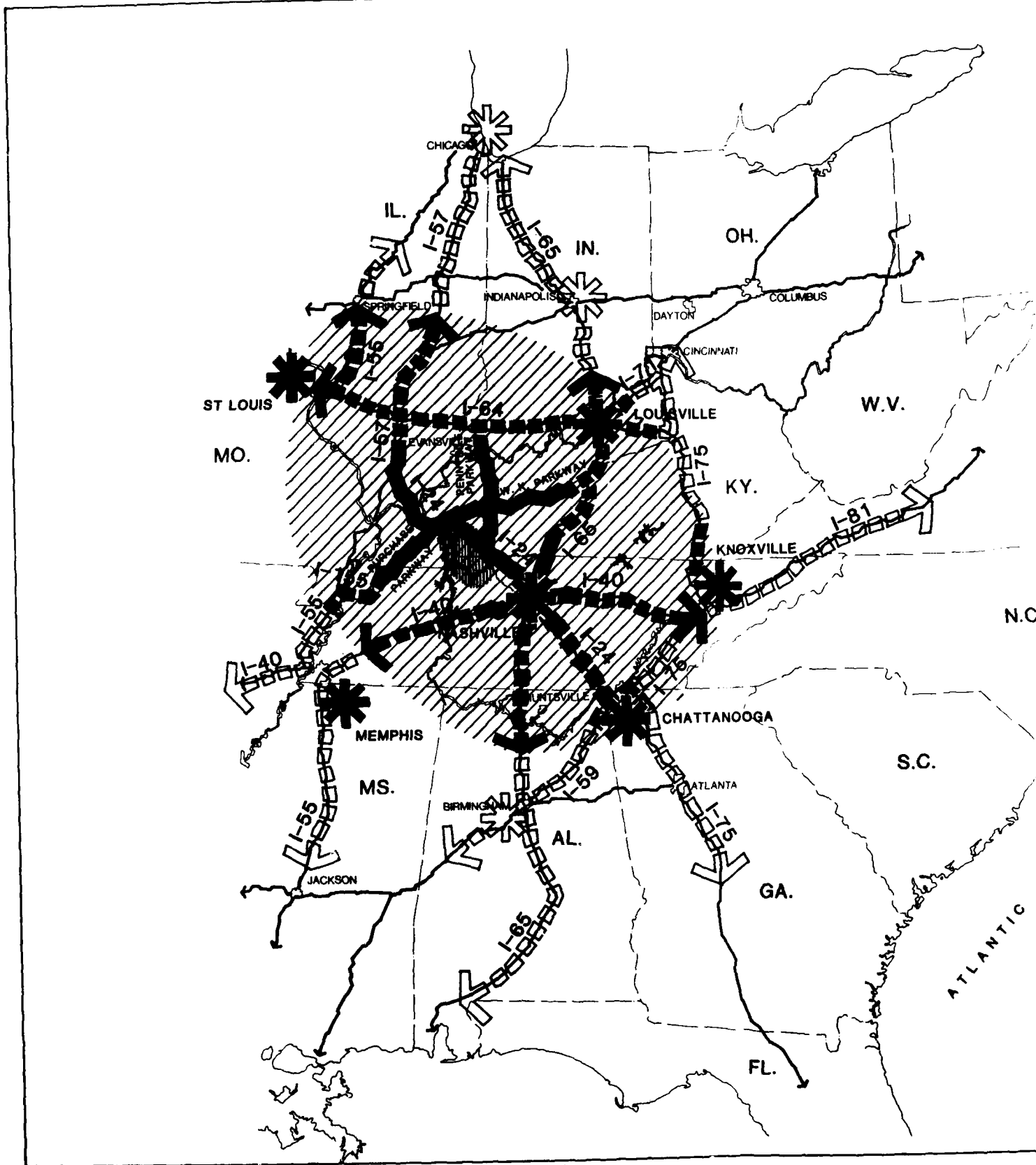
Communication and coordination of all plans, programs, and policies for Lake Barkley with all local, state, and Federal agencies should be continued. These efforts should also include representatives from the private sector to insure all are well-informed on Corps plans and activities at Lake Barkley.

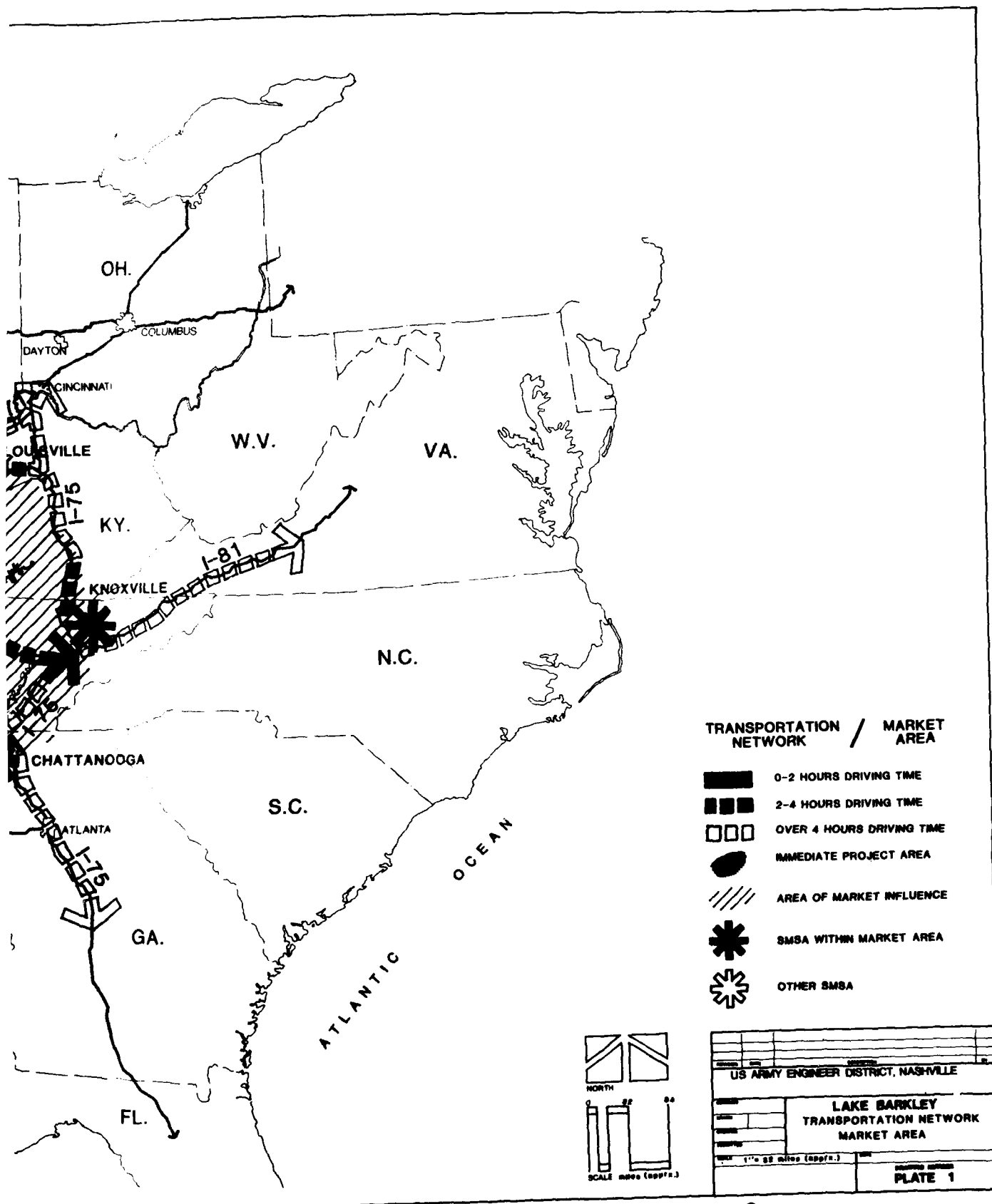
9.02.04 Regulation Enforcement

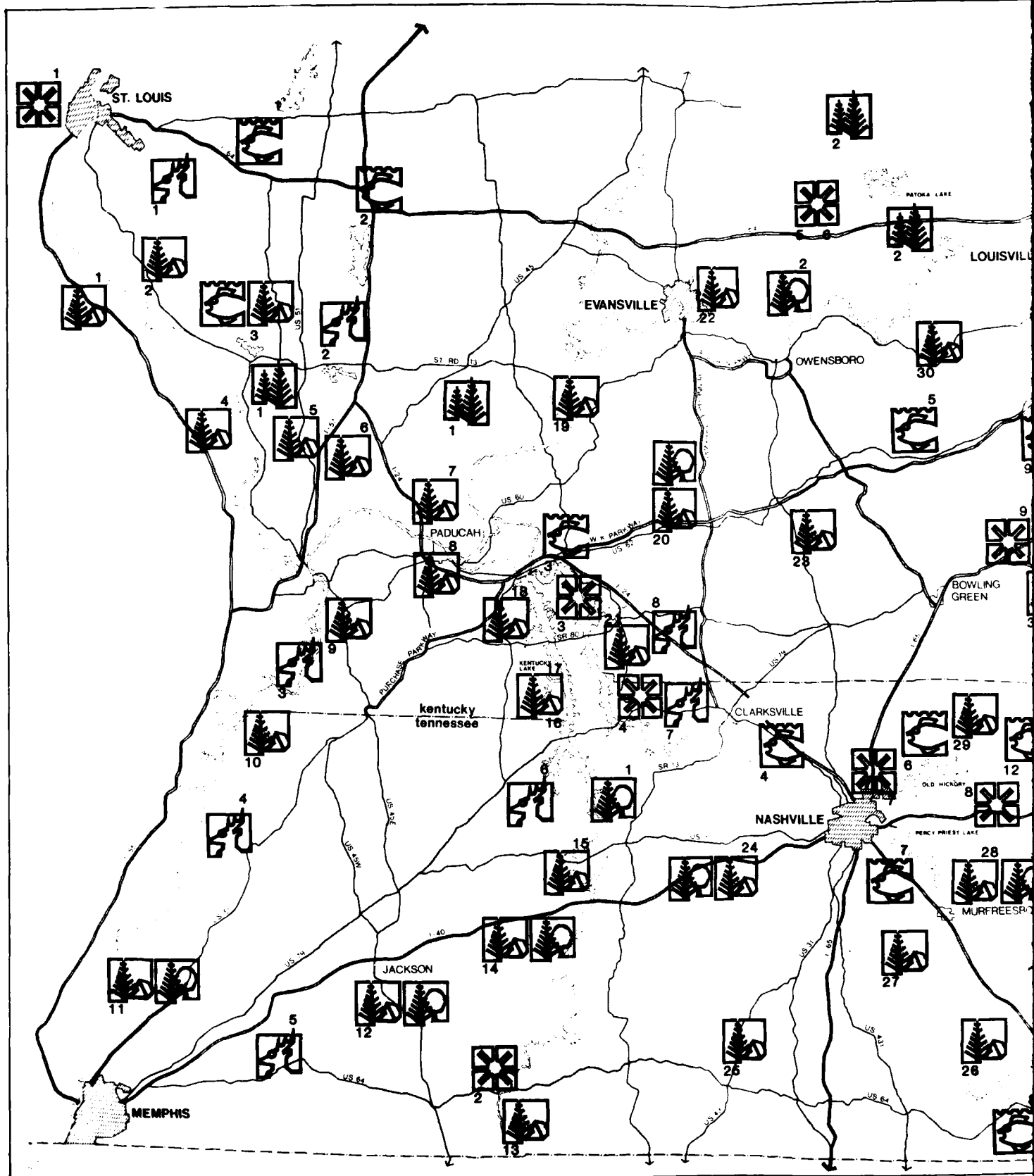
All recreation-use regulations on project lands and waters should be strictly enforced. This will assist in protecting the recreation, natural, and cultural resources of the area and will reduce costs of operations and maintenance.

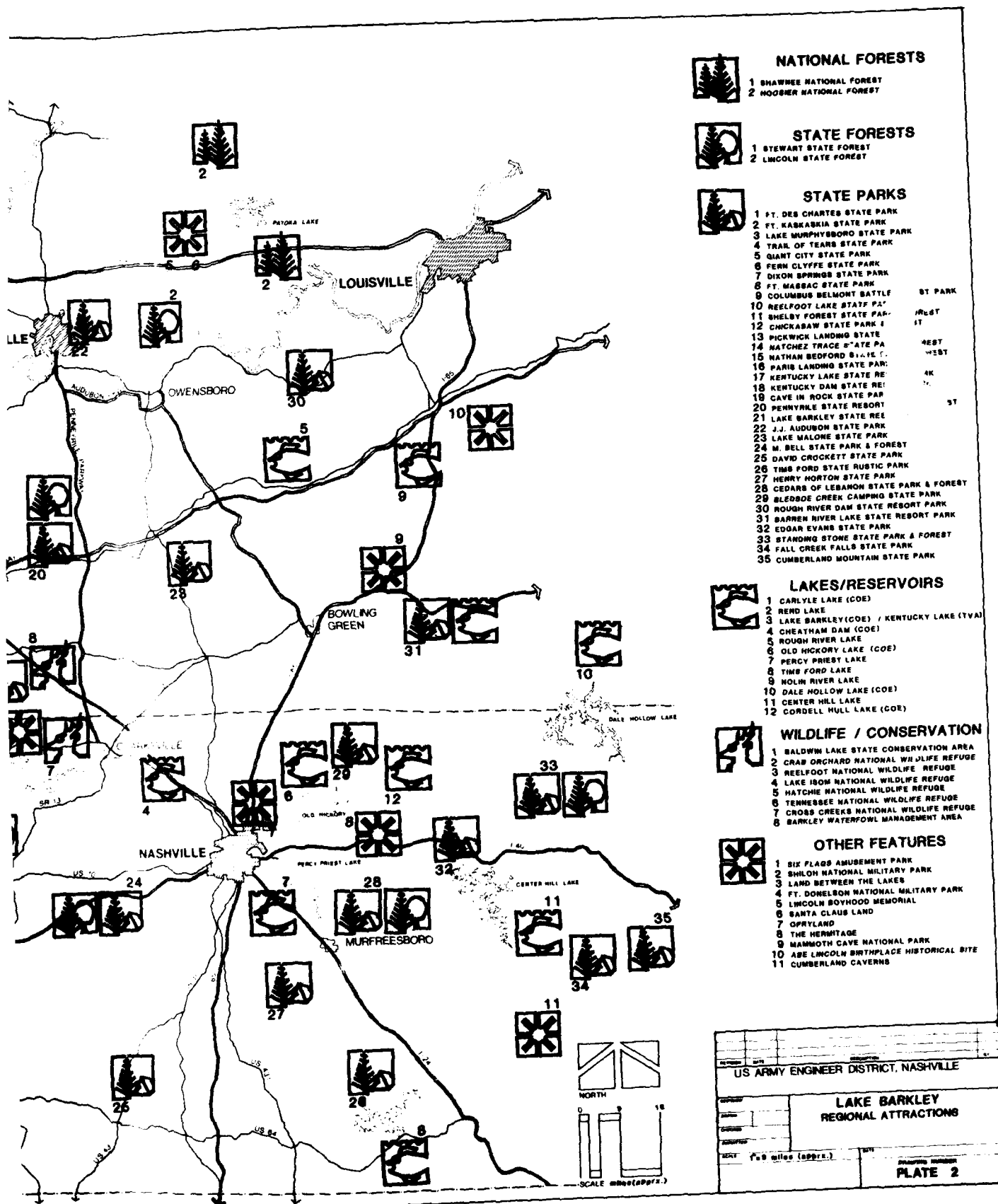
9.02.05 Fishing Opportunities

Additional improvements should be made to better serve the bank fisher, including the use of fish attractors, the construction of new fishing piers and fish cleaning stations, and the upgrading of existing bank-fishing points.





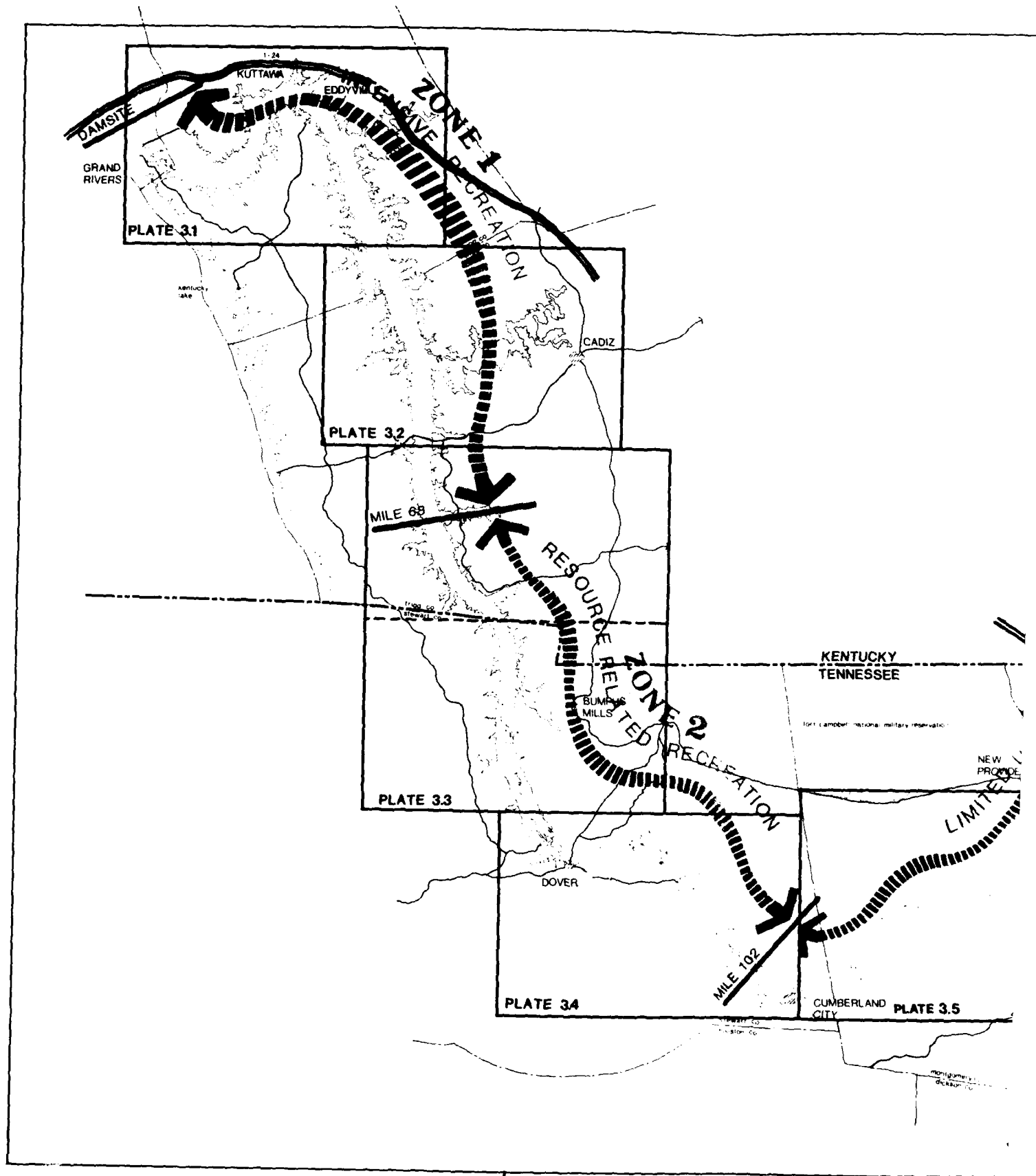


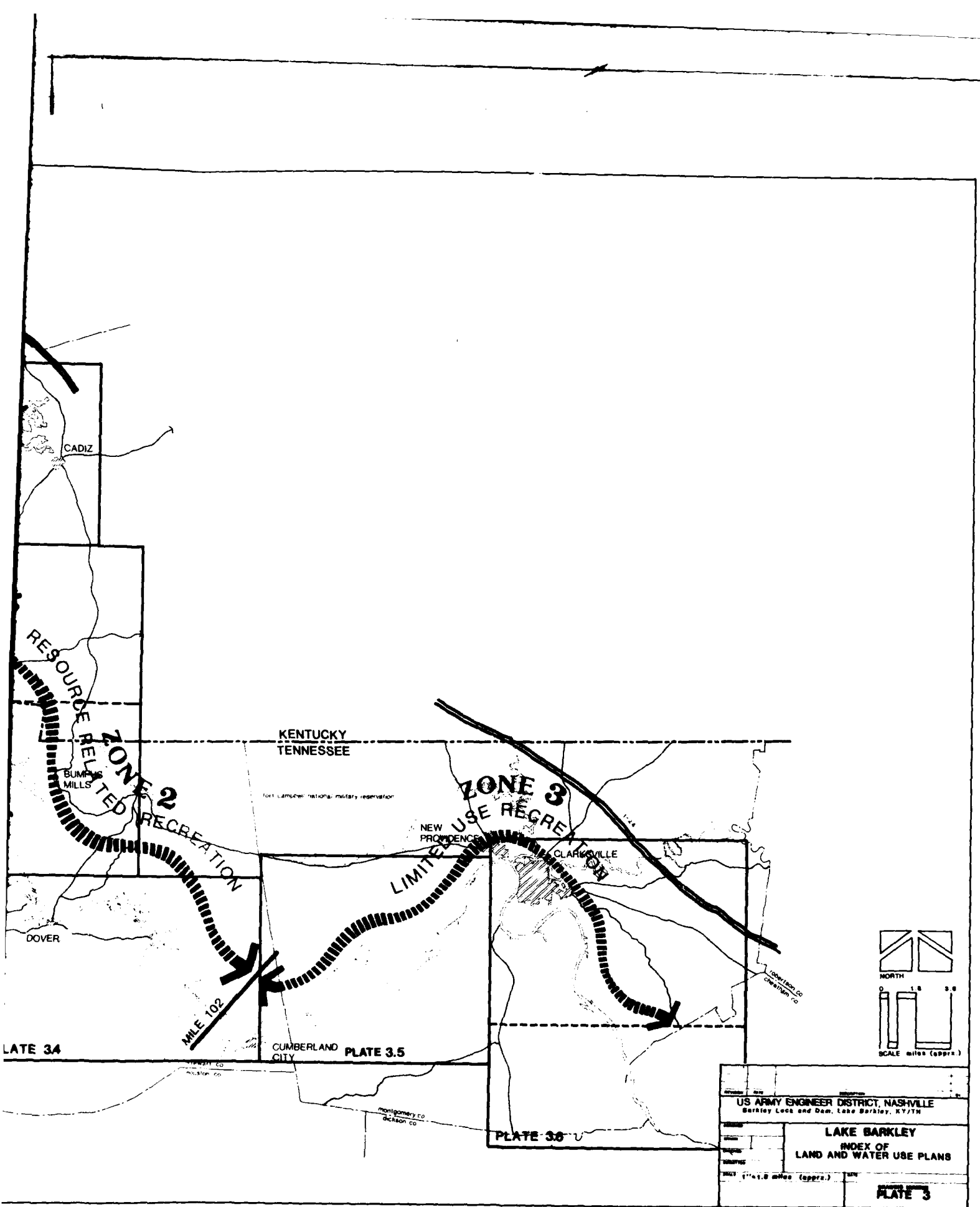


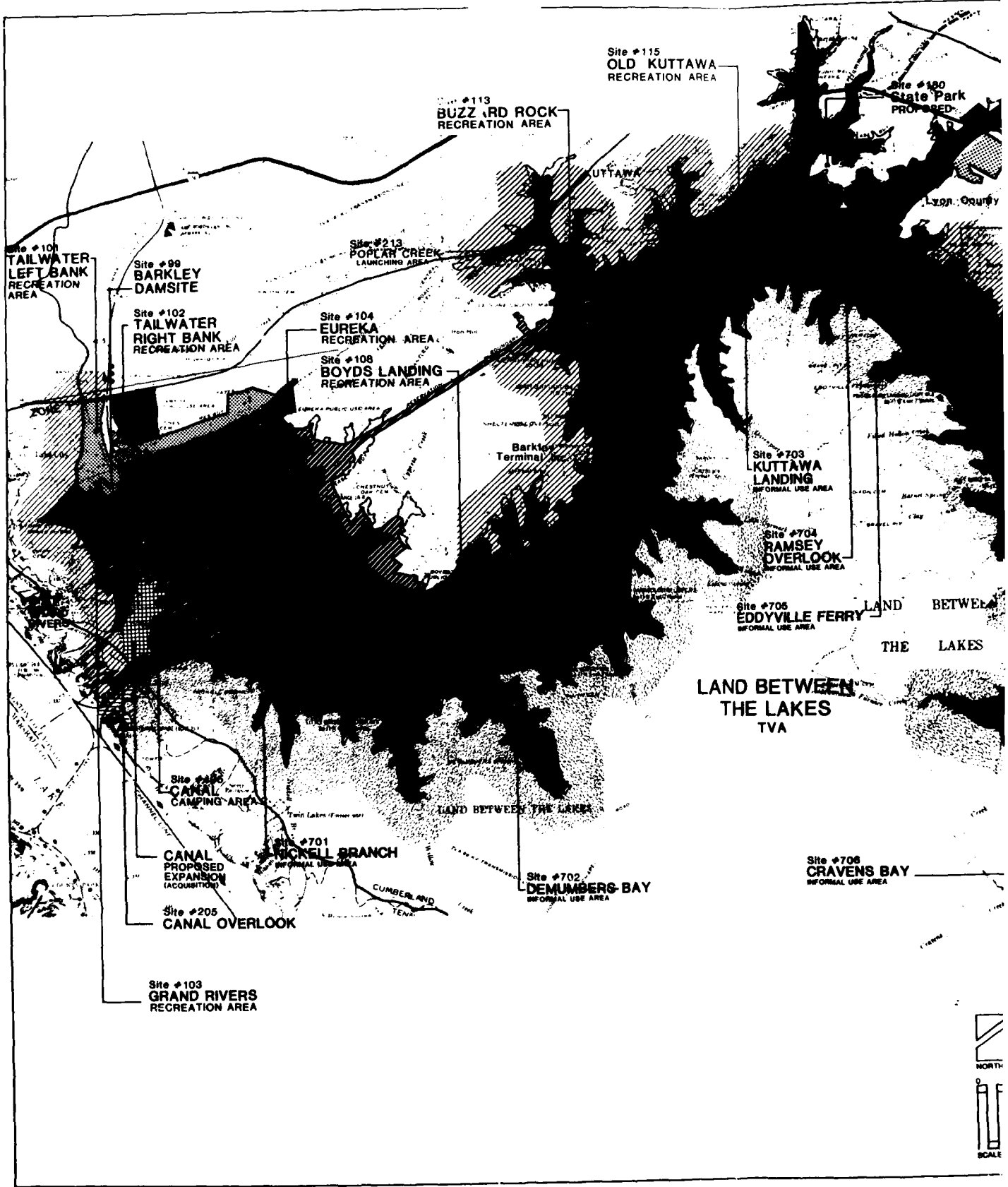
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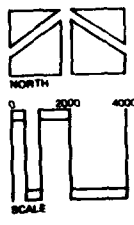
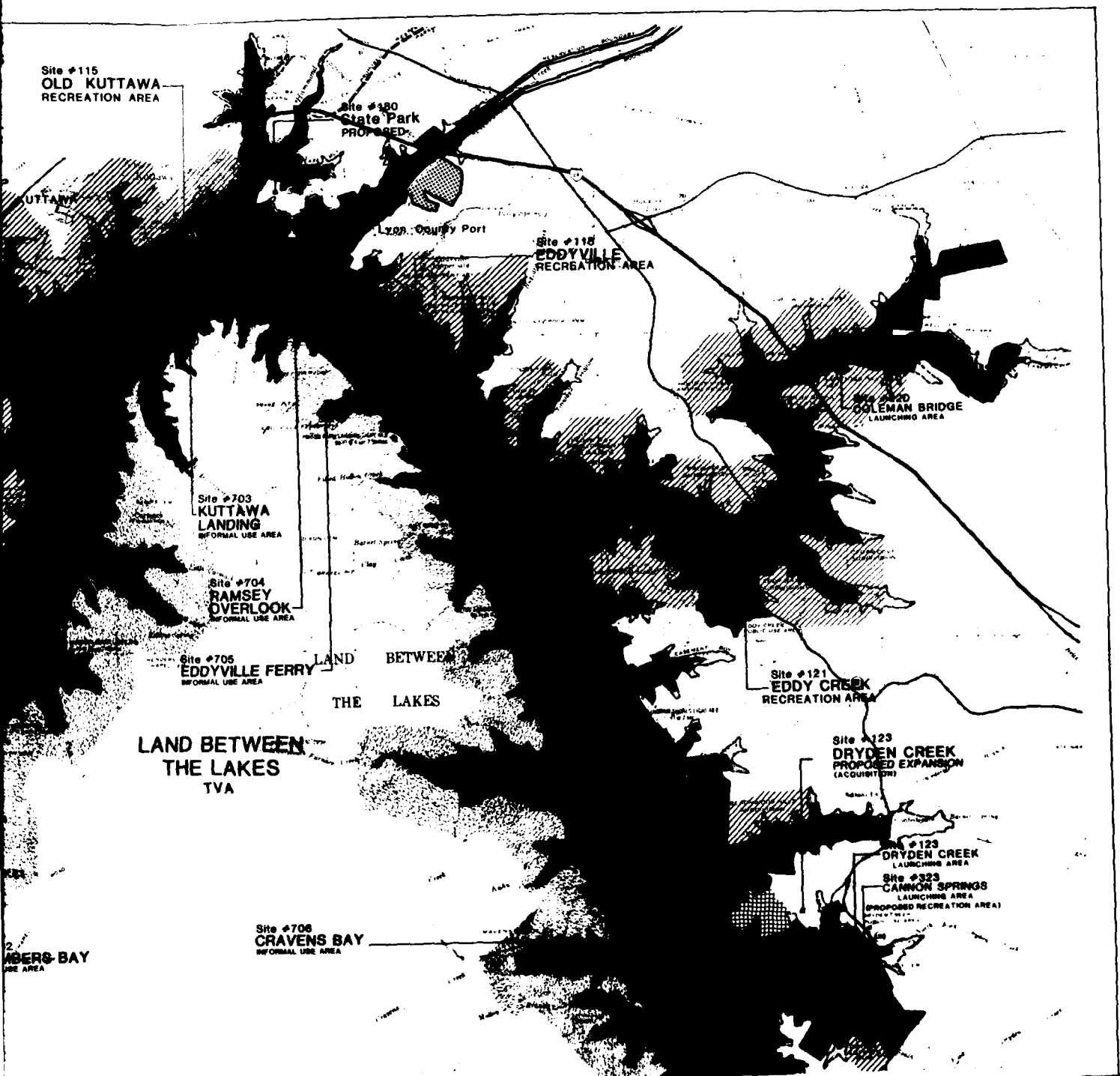
* PLEASE NOTE *

THE FISH AND WILDLIFE AND
RESERVE FOREST LAND ALLOCATIONS
ON THE LAND AND WATER USE
PLANS (PLATES 3.1-3.6) ARE REVERSED.



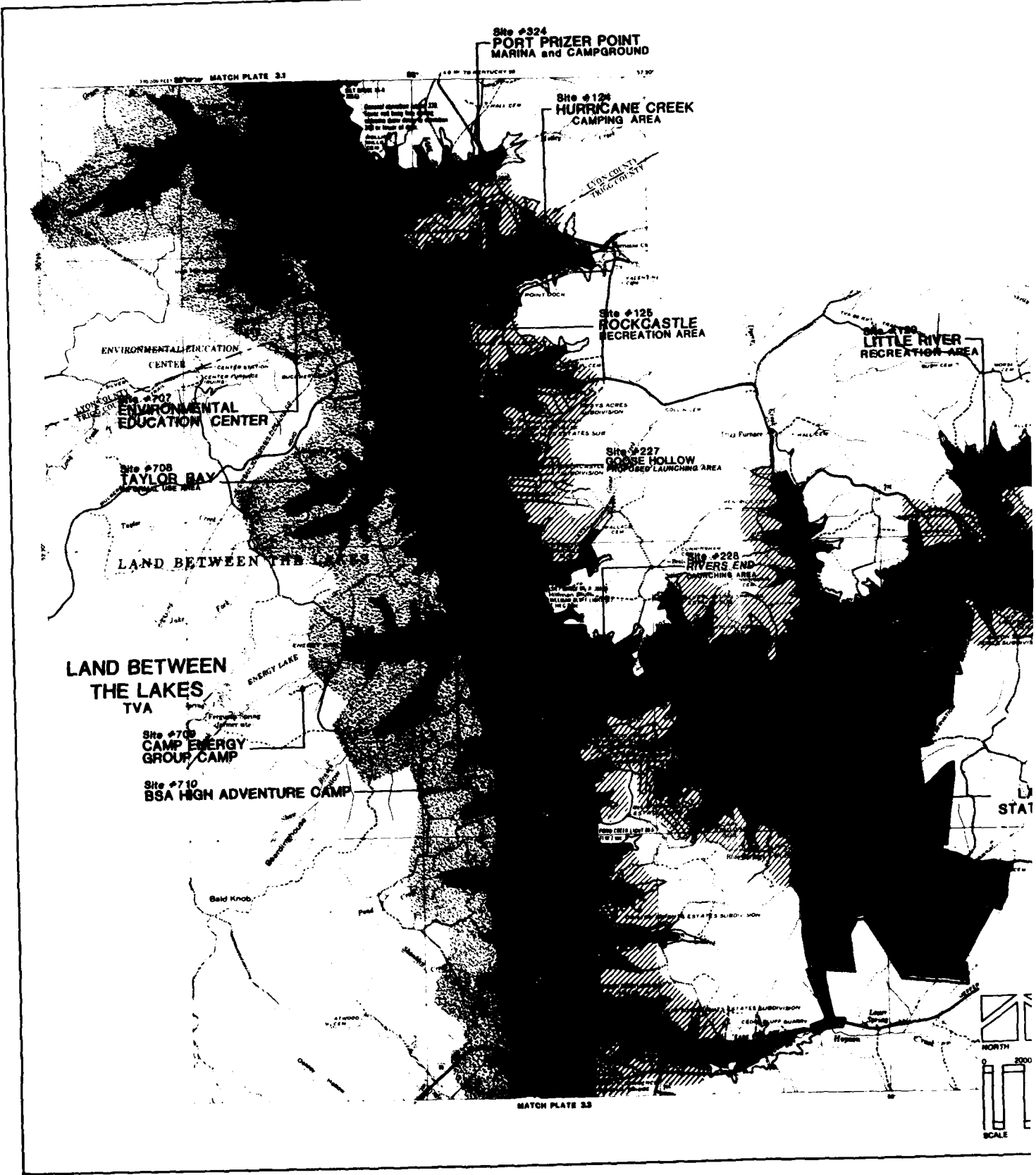






- LEGEND**
- SEASONAL POOL EL. 350
 - BOATING UNRESTRICTED
 - FLOWAGE EASEMENT FLOOD POOL EL. 375.0
 - FEE ACQUISITION LINE
 - OPERATIONS LANDS
 - RECREATION LANDS INTENSIVE USE
 - LOW DENSITY RECREATION
 - LIMITED USE RECREATIONAL LANDS
 - NATURAL AREA
 - FISH AND WILDLIFE LANDS
 - RESERVE FOREST LANDS
 - ADJACENT RESIDENTIAL DEVELOPMENT
 - NO BOATING
 - BOATING-IDLE SPEED
 - COMMERCIAL/INDUSTRIAL

US ARMY ENGINEER DISTRICT, NASHVILLE Barkley Lock and Dam, Lake Barkley, KY/TN	
LAKE BARKLEY LAND AND WATER USE PLAN	
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Site #324
PORT PRIZER POINT
MARINA and CAMPGROUND

Site #124
HURRICANE CREEK
CAMPING AREA

Site #125
ROCKCASTLE
RECREATION AREA

Site #126
LITTLE RIVER
RECREATION AREA

ENVIRONMENTAL EDUCATION
CENTER

Site #707
ENVIRONMENTAL
EDUCATION CENTER

Site #708
TAYLOR BAY
RECREATION AREA

LAND BETWEEN THE LAKES

LAND BETWEEN
THE LAKES
TVA

Site #709
CAMP ENERGY
GROUP CAMP

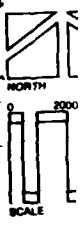
Site #710
BSA HIGH ADVENTURE CAMP

Site #227
GOOSE HOLLOW
PROPOSED LAUNCHING AREA

Site #228
RIVERS END
LAUNCHING AREA

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MATCH PLATE 33



ZER POINT
CAMPGROUND

Site #124
HURRICANE CREEK
CAMPGROUND AREA

Site #125
ROCKCASTLE
RECREATION AREA

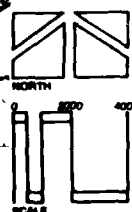
Site #227
ROCK HOLLOW
PROPOSED LAUNCHING AREA

Site #228
RIVERS END
LAUNCHING AREA

Site #126
LITTLE RIVER
RECREATION AREA

Site #131
LAKE BARKLEY
STATE RESORT PARK

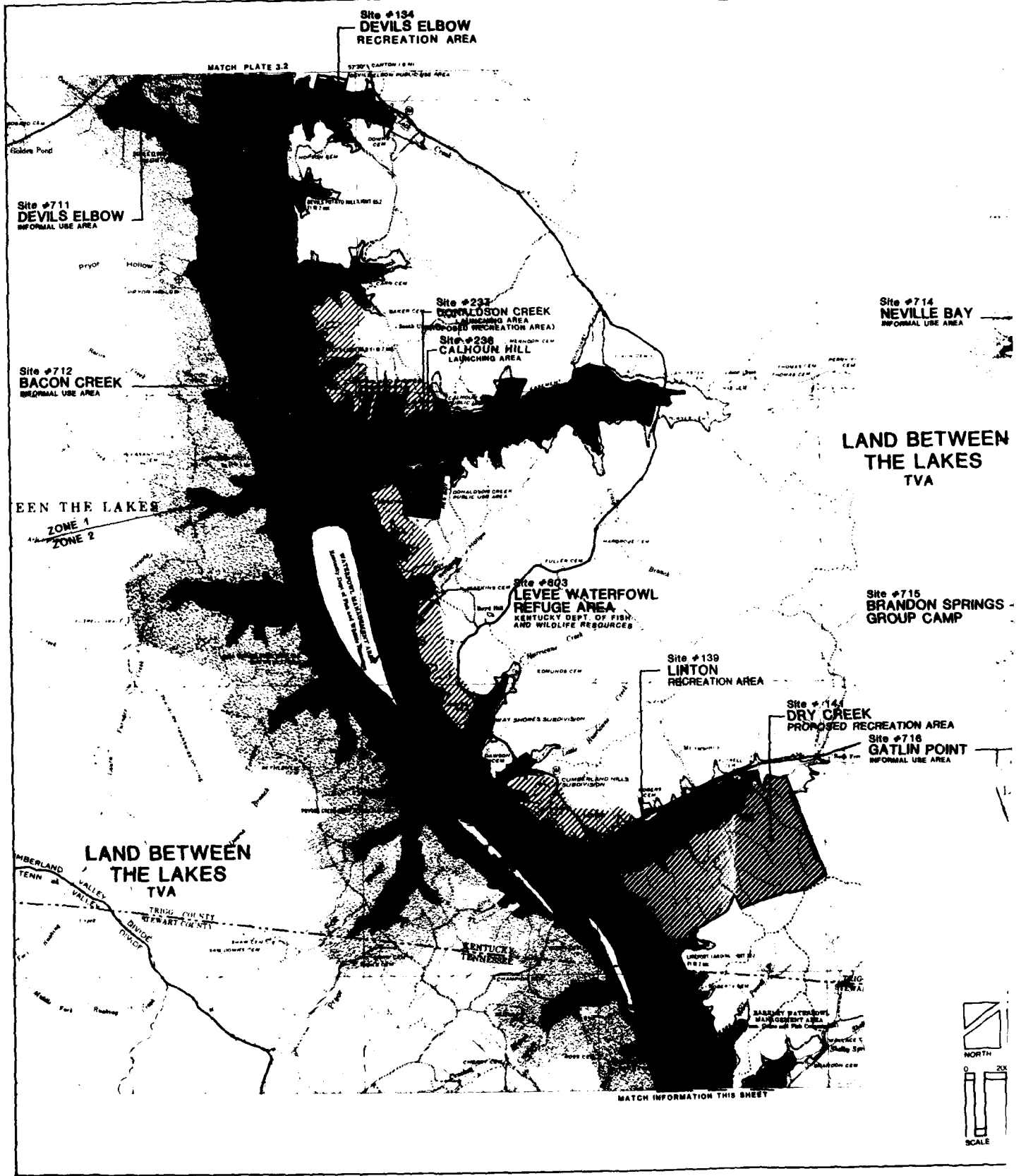
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RECREATION AREA

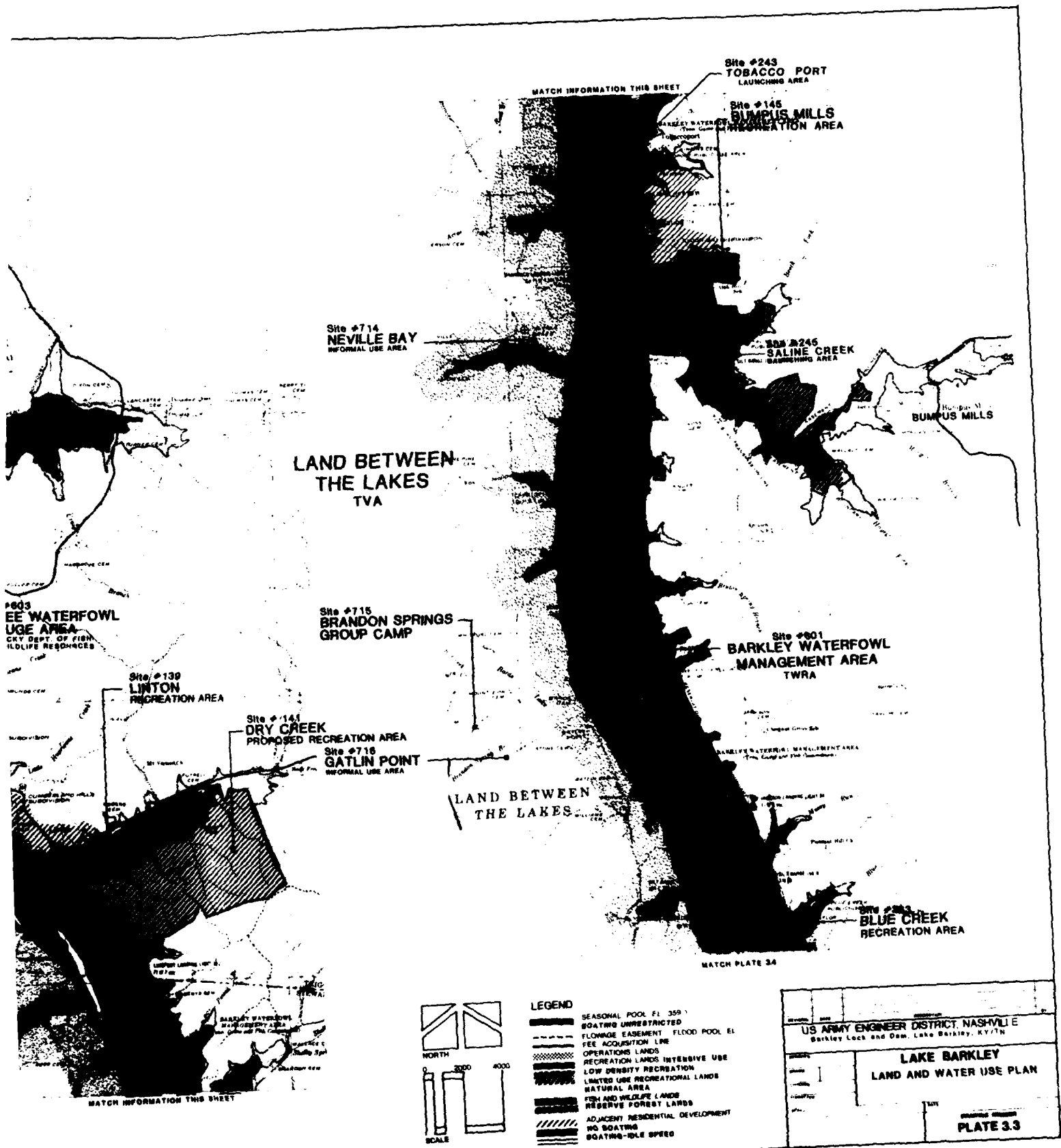


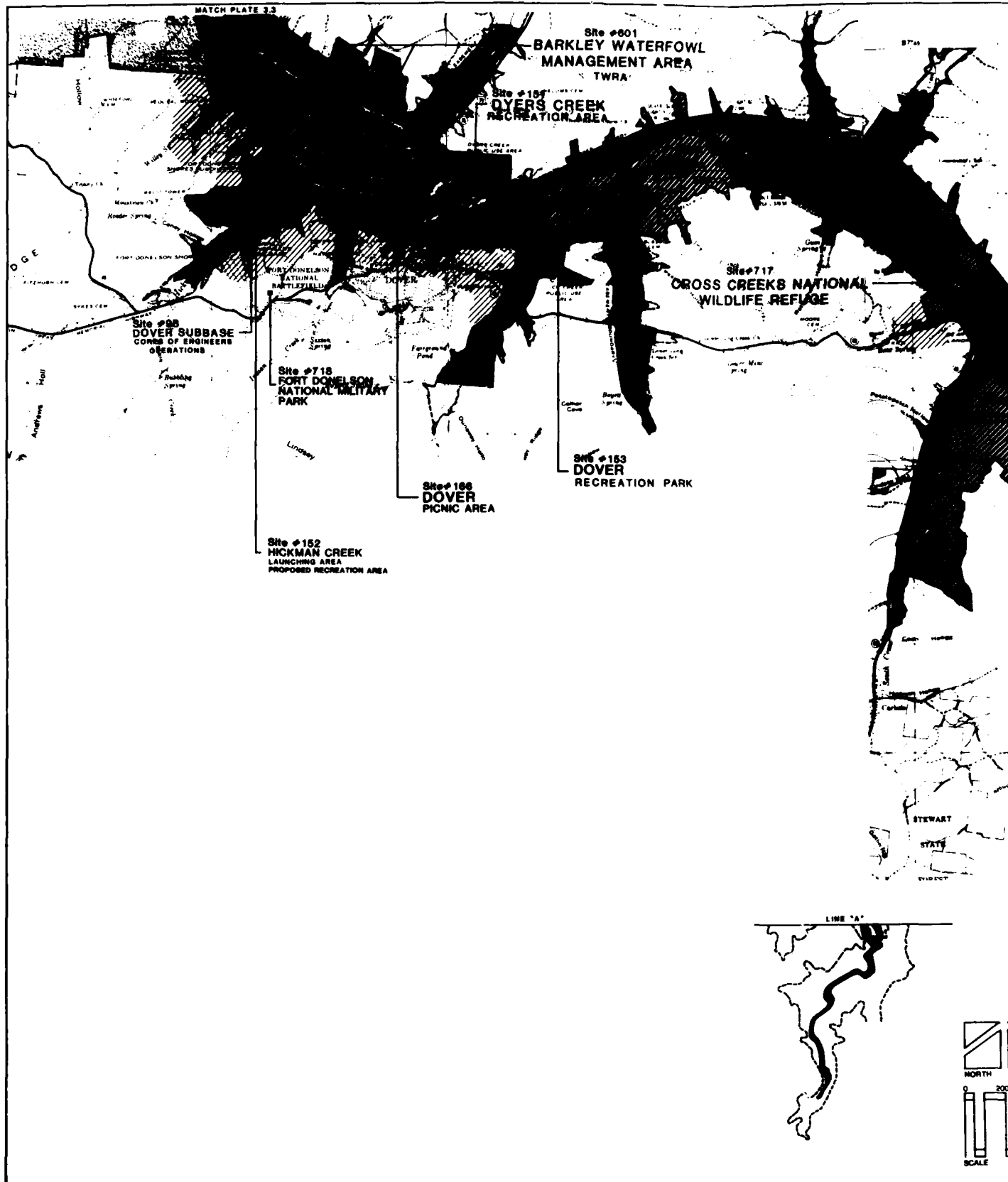
- LEGEND**
- SEASONAL POOL, EL. 350 (1)
 - BOATING-UNRESTRICTED
 - FLOODAGE EASEMENT/FLOOD POOL EL. 375.0
 - FEE ACQUISITION LINE
 - OPERATIONS LANDS
 - RECREATION LANDS INTENSIVE USE
 - LOW DENSITY RECREATION
 - LIMITED USE RECREATIONAL LANDS
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 - FISH AND WILDLIFE LANDS
 - RESERVE FOREST LANDS
 - ADJACENT RESIDENTIAL DEVELOPMENT
 - NO BOATING
 - BOATING-IDE SPEED

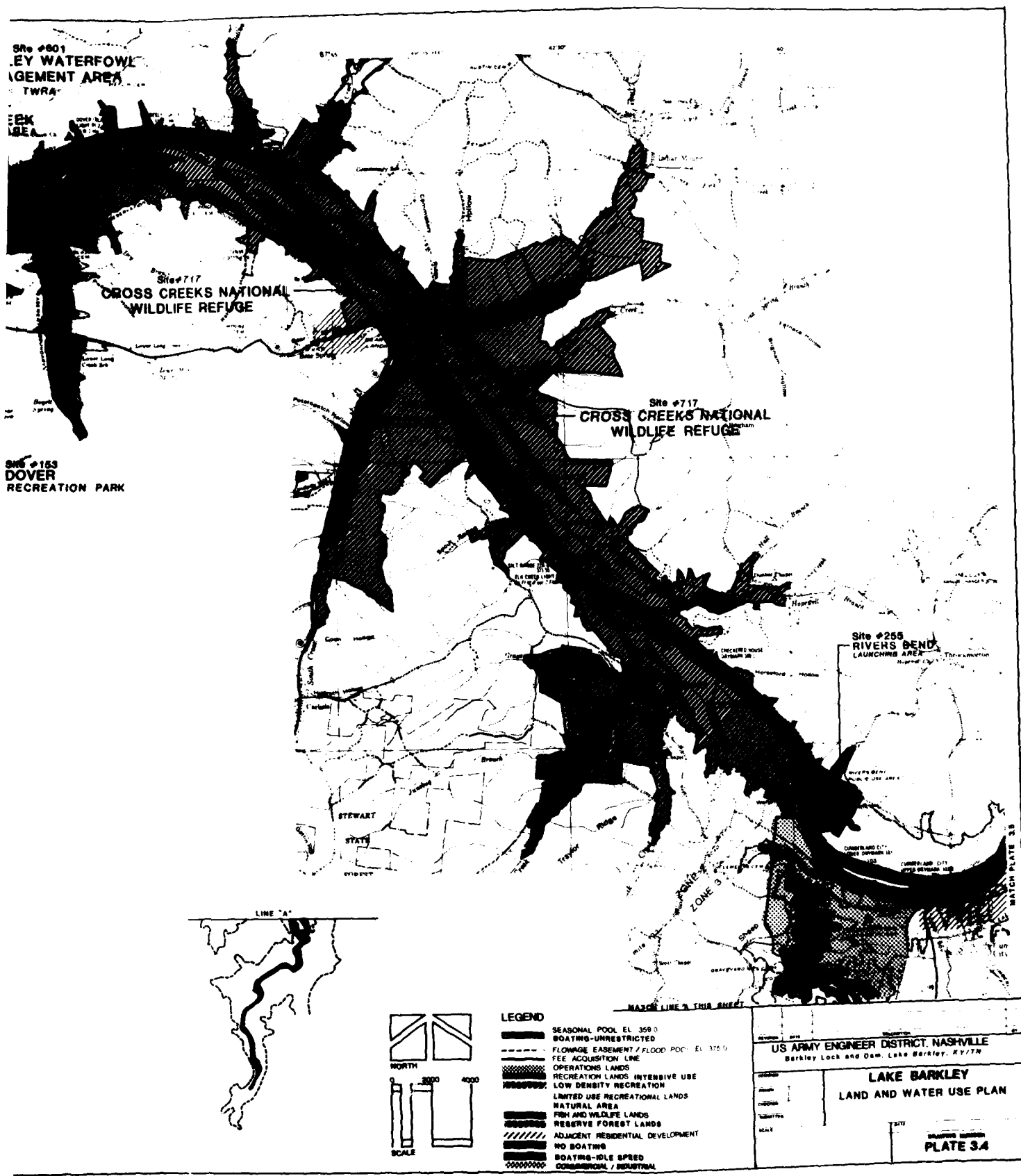
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Barkley Lock and Dam, Lake Barkley, KY/TN	
LAKE BARKLEY LAND AND WATER USE PLAN	
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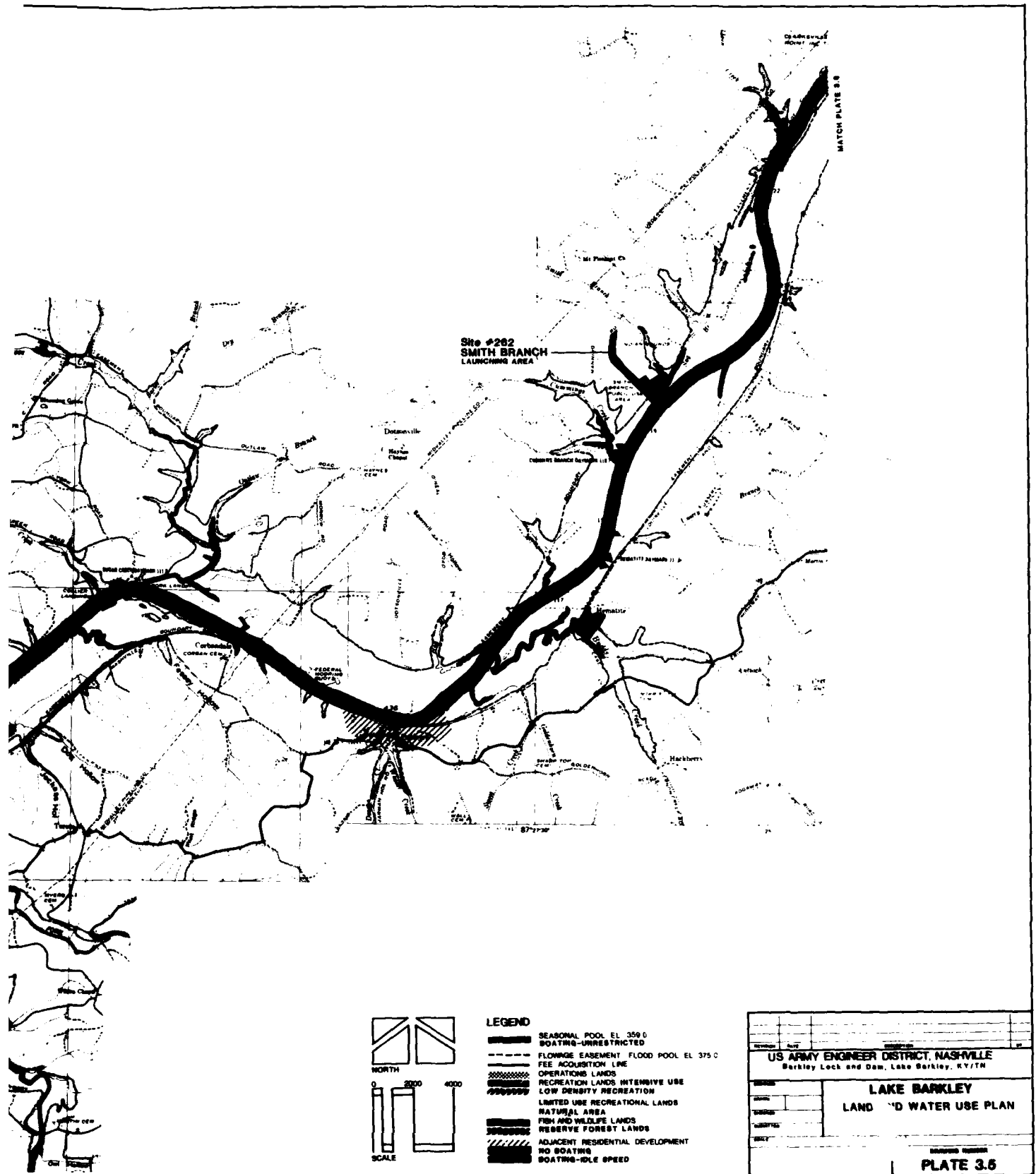
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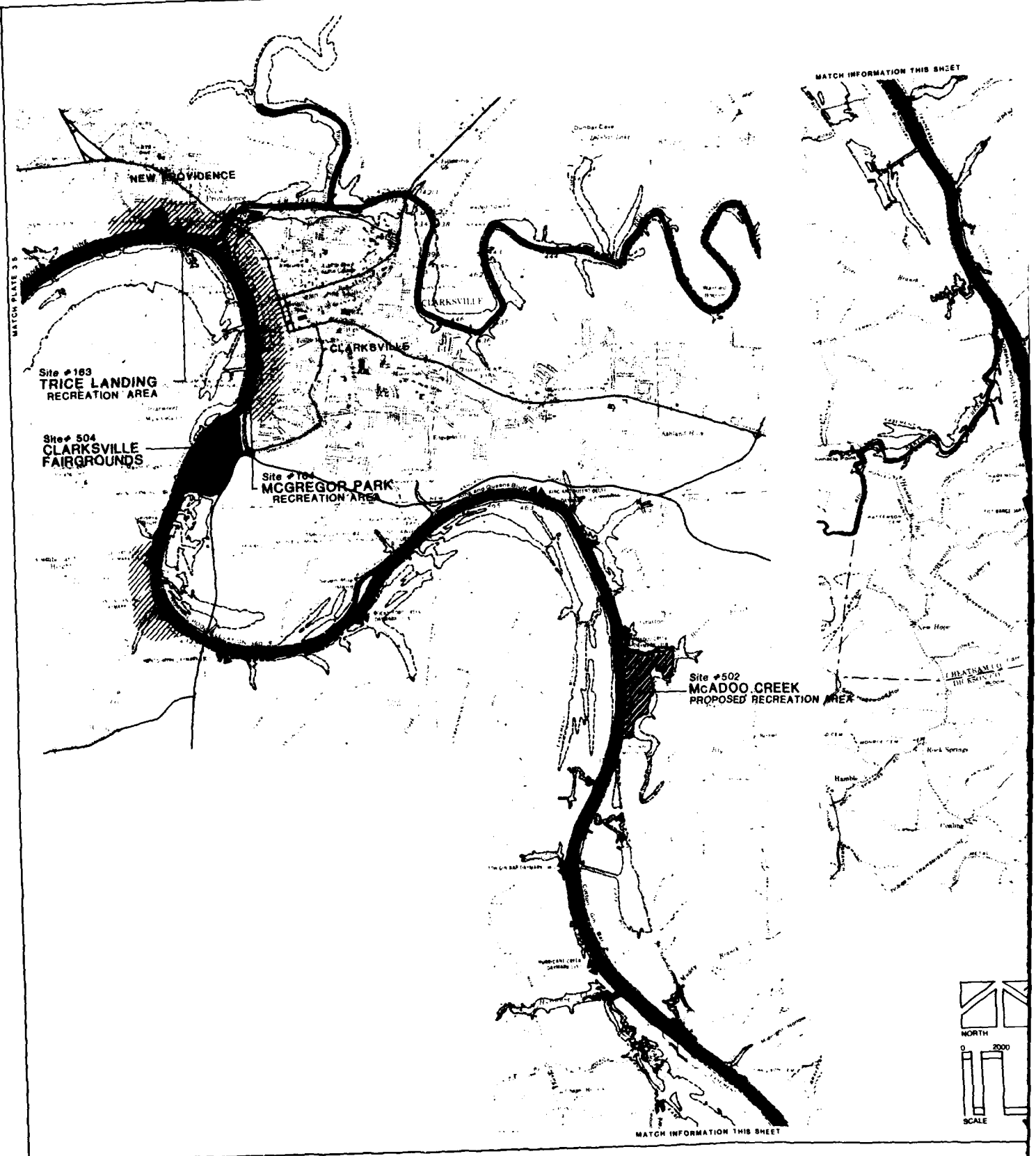
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Guioes Creek Recreation Area

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North Arrow

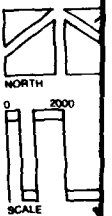


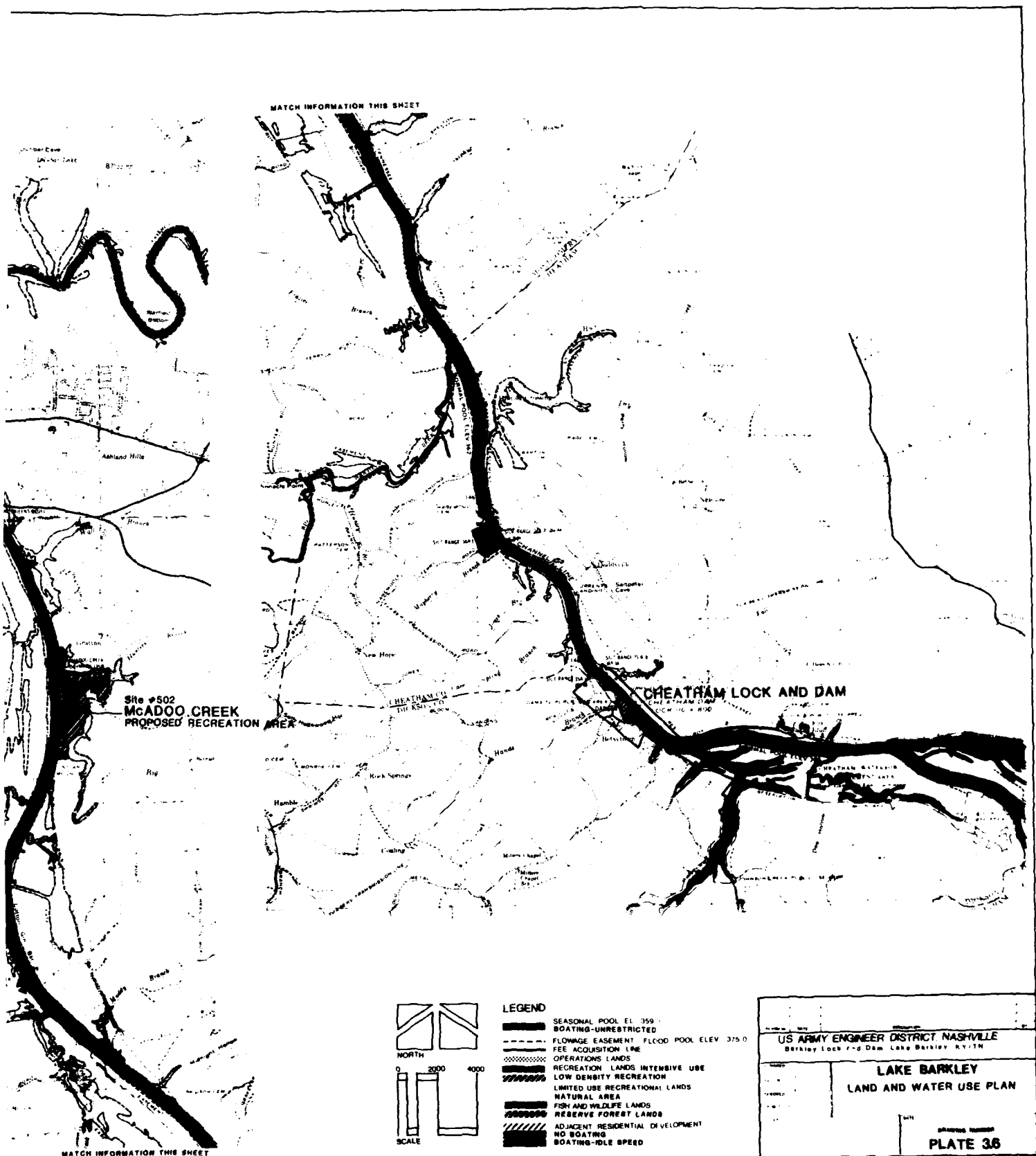


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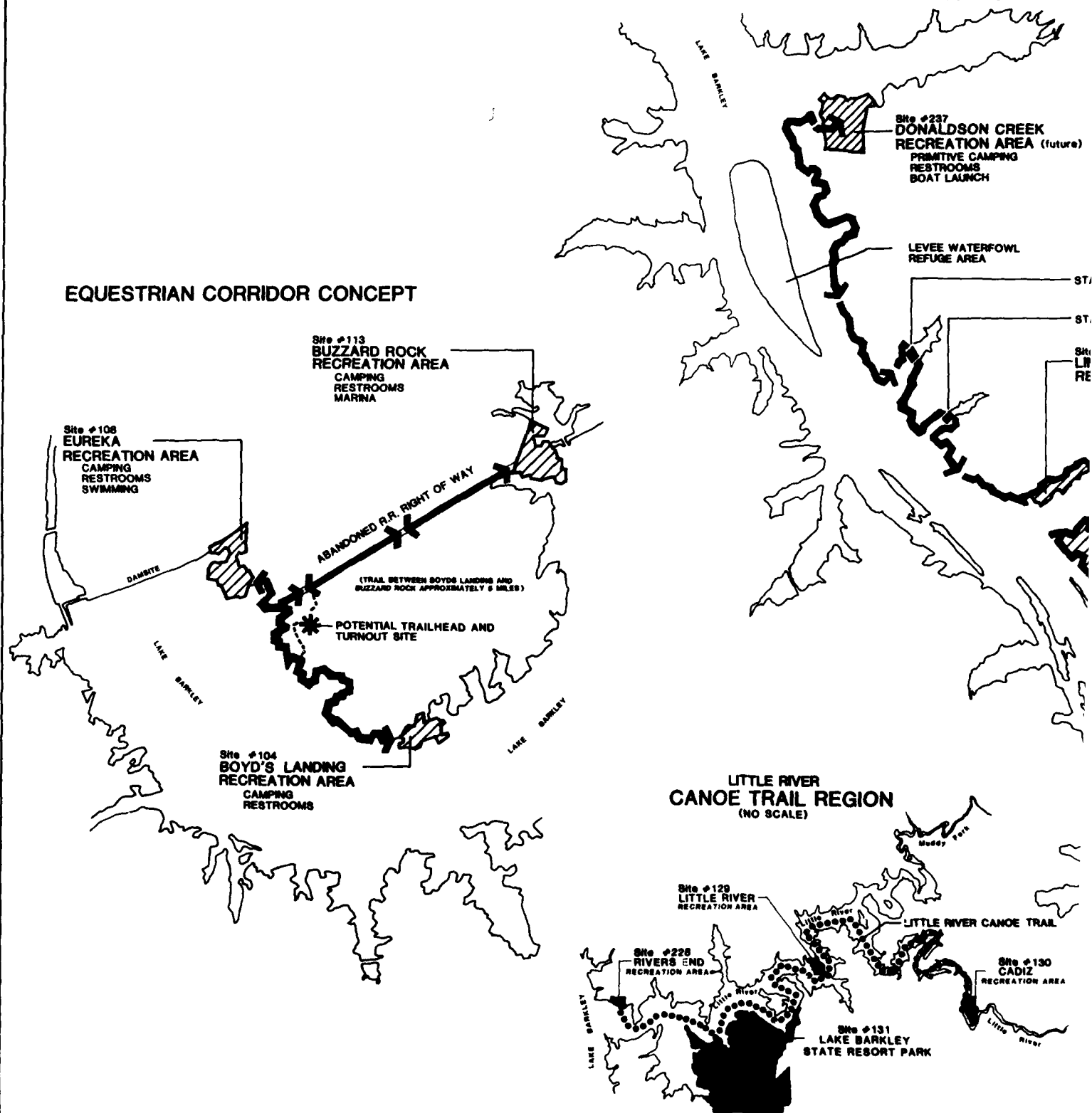




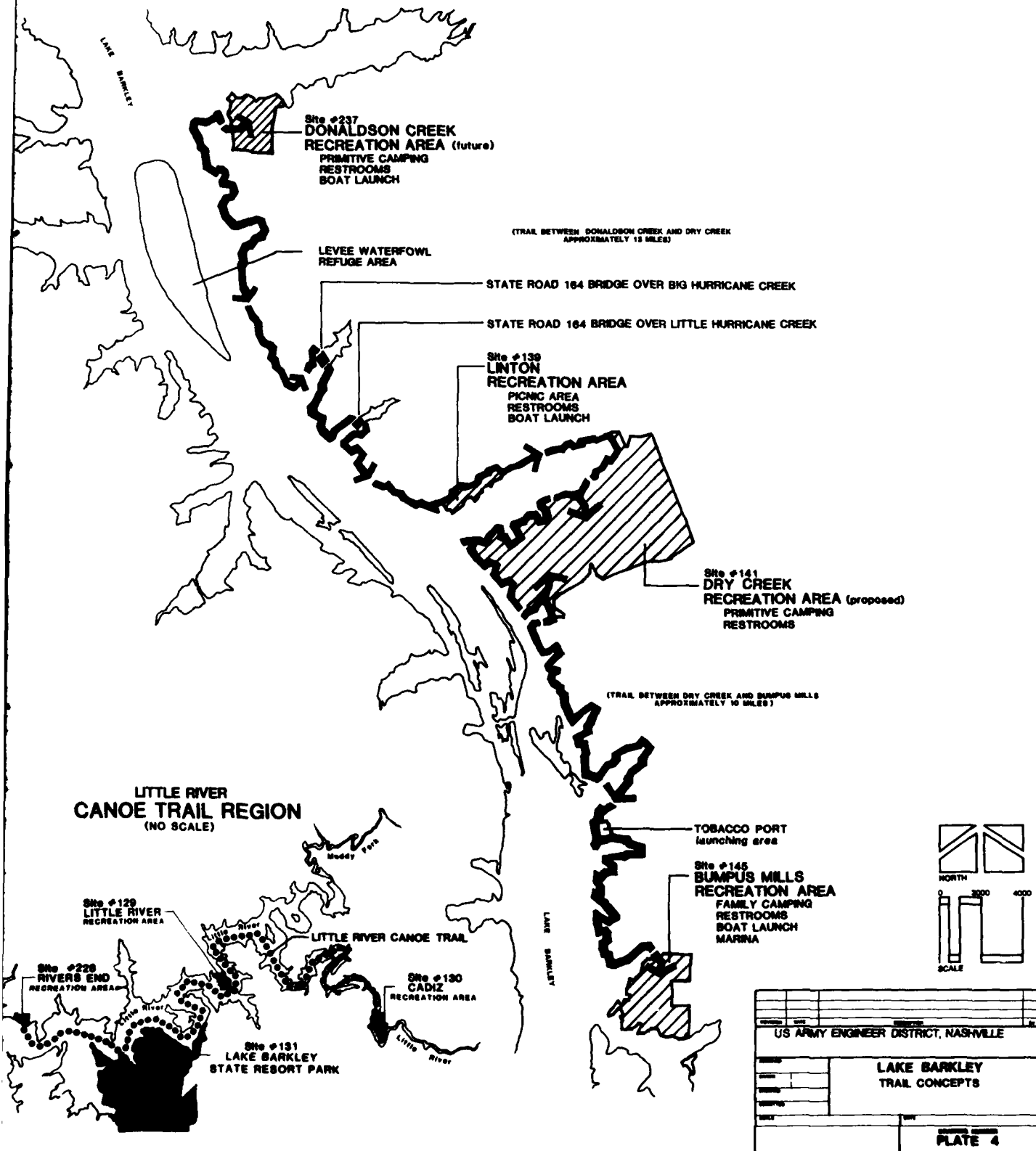
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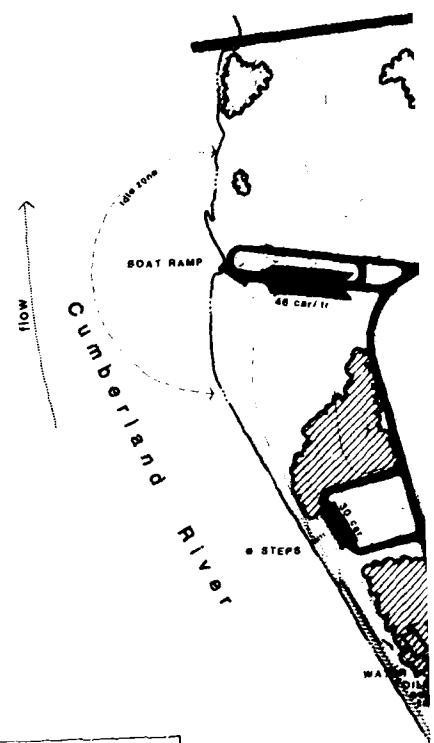
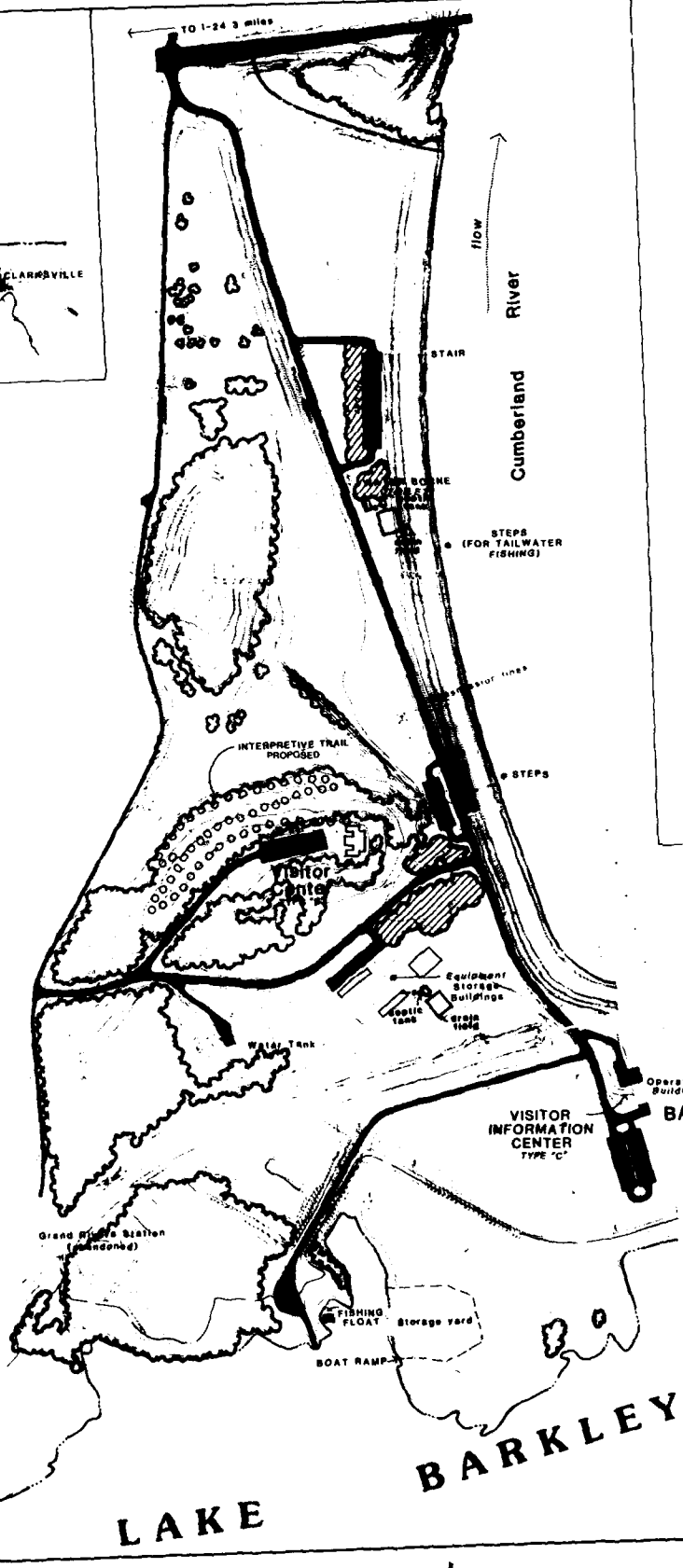
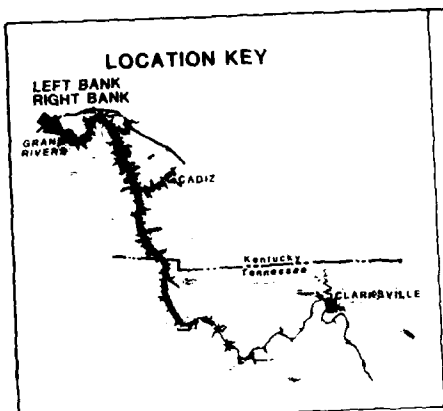
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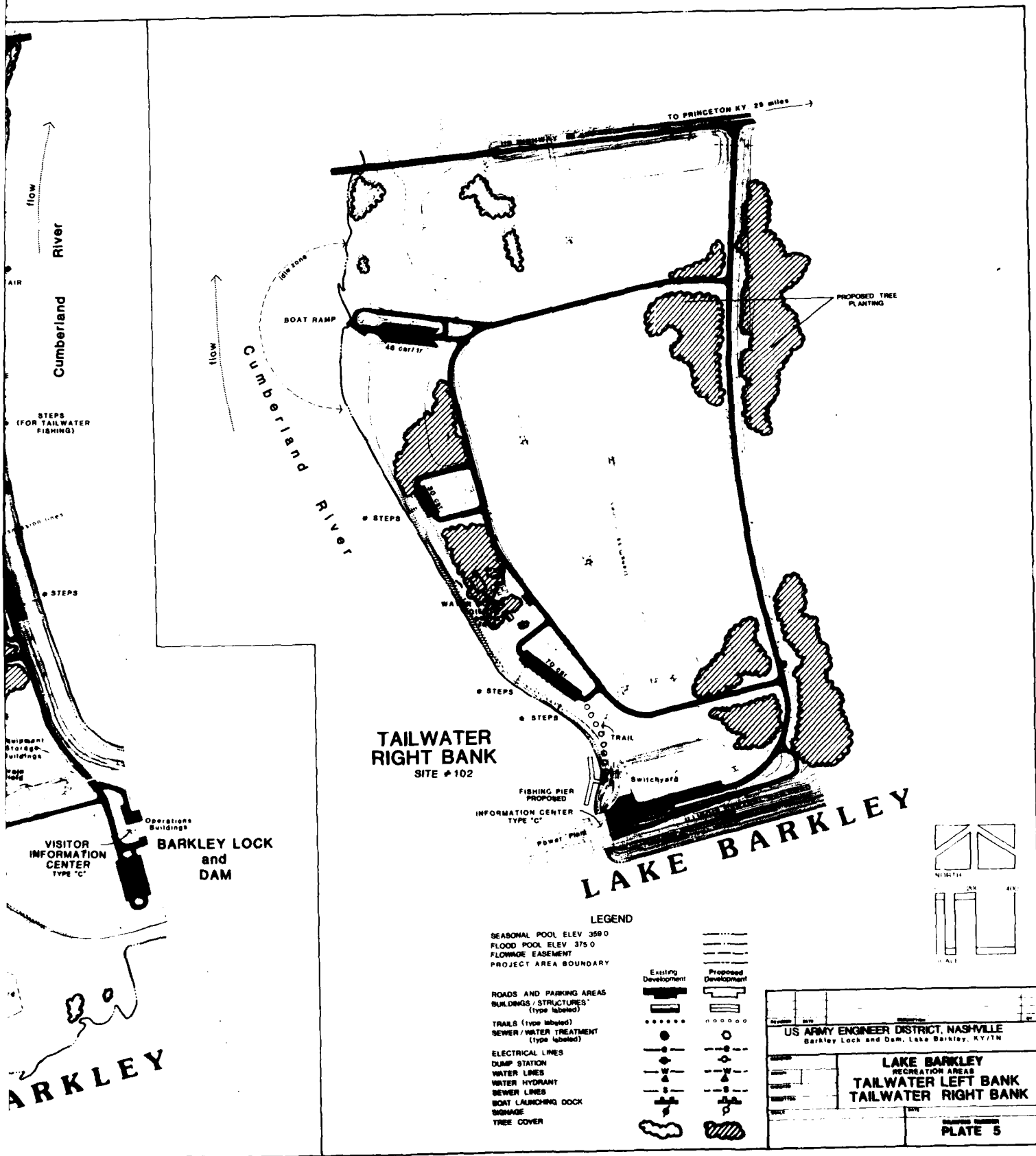
HIKING CORRIDOR CONCEPT

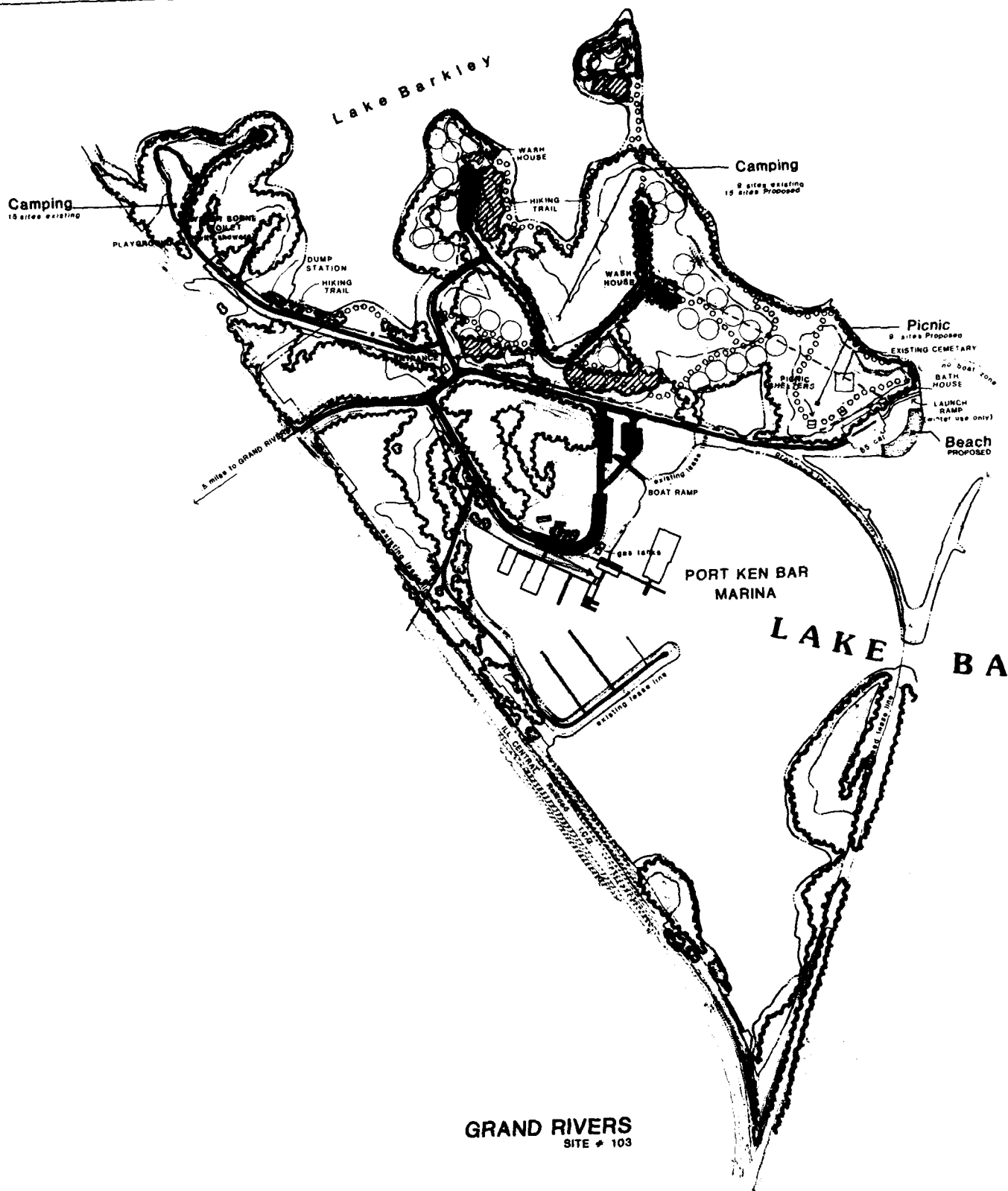


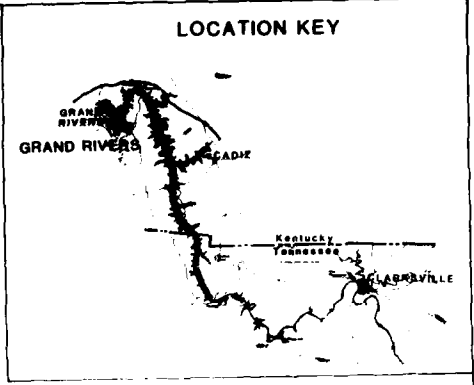
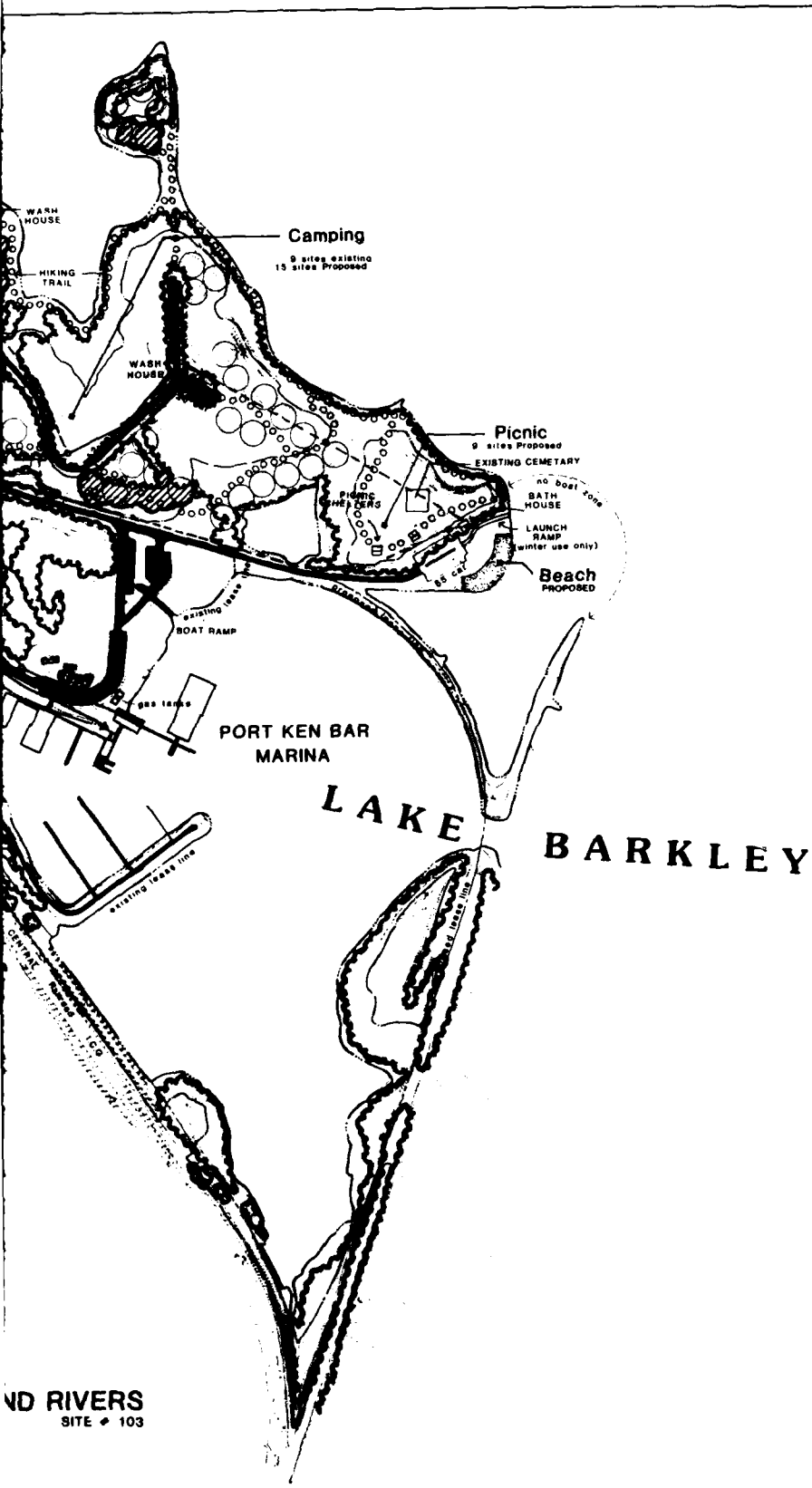


**TAILWATER
LEFT BANK**
SITE #101

**TAILWATER
RIGHT BAN**
SITE #102

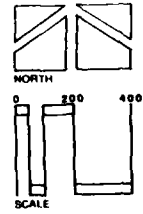






LEGEND

SEASONAL POOL ELEV. 359.0	Existing Development	Proposed Development
FLOOD POOL ELEV. 375.0		
FLOWAGE EASEMENT		
PROJECT AREA BOUNDARY		
ROADS AND PARKING AREAS		
BUILDINGS / STRUCTURES (type labeled)		
TRAILS (type labeled)		
SEWER / WATER TREATMENT (type labeled)		
ELECTRICAL LINES		
DUMP STATION		
WATER LINES		
WATER HYDRANT		
SEWER LINES		
BOAT LAUNCHING DOCK		
SIGNAGE		
TREE COVER		



ALL RIGHTS RESERVED

US ARMY ENGINEER DISTRICT, NASHVILLE

Barkley Lock and Dam, Lake Barkley, KY/TN

LAKE BARKLEY RECREATION AREA

GRAND RIVERS

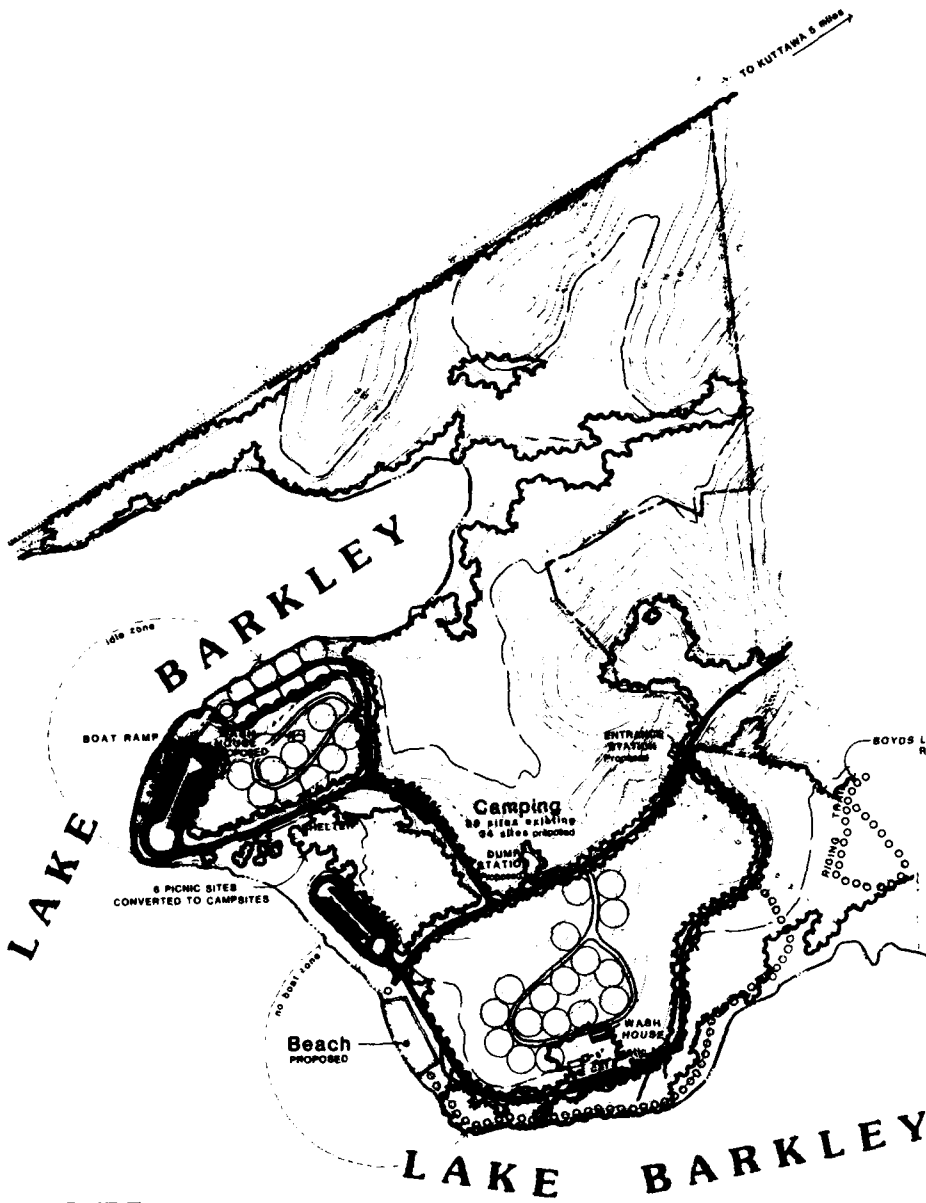
DATE

PLATE 6

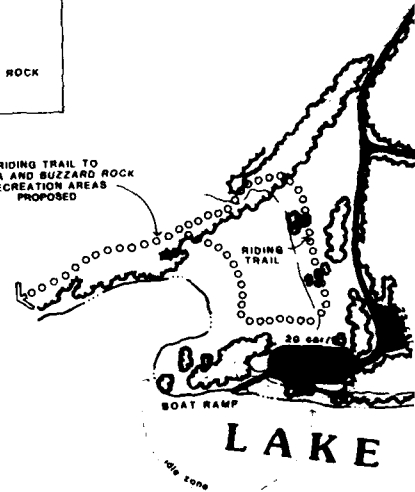
ND RIVERS
SITE # 103

1

2



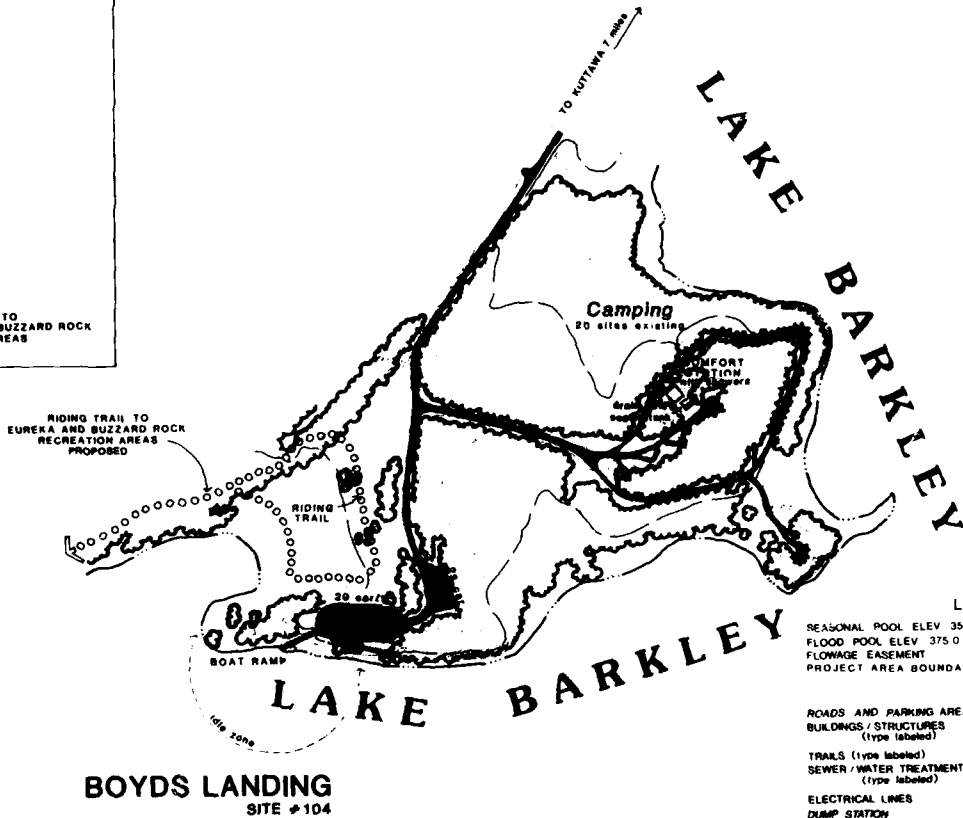
EUREKA
SITE #108



BOYDS LANDING
SITE #104

AWA 5 miles

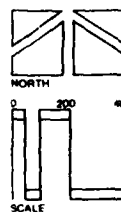
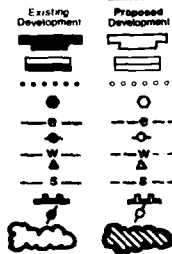
LOCATION KEY



LEGEND

SEASONAL POOL ELEV 359.0
FLOOD POOL ELEV 375.0
FLOWAGE EASEMENT
PROJECT AREA BOUNDARY

ROADS AND PARKING AREAS
BUILDINGS / STRUCTURES
(type labeled)
TRAILS (type labeled)
SEWER / WATER TREATMENT
(type labeled)
ELECTRICAL LINES
DUMP STATION
WATER LINES
WATER HYDRANT
SEWER LINES
BOAT LAUNCHING DOCK
SIGNAGE
TREE COVER



US ARMY ENGINEER DISTRICT, NASHVILLE Barkley Lock and Dam, Lake Barkley, KY/TN	
LAKE BARKLEY RECREATION AREAS EUREKA BOYDS LANDING	
DRAWING NUMBER PLATE 7	

2

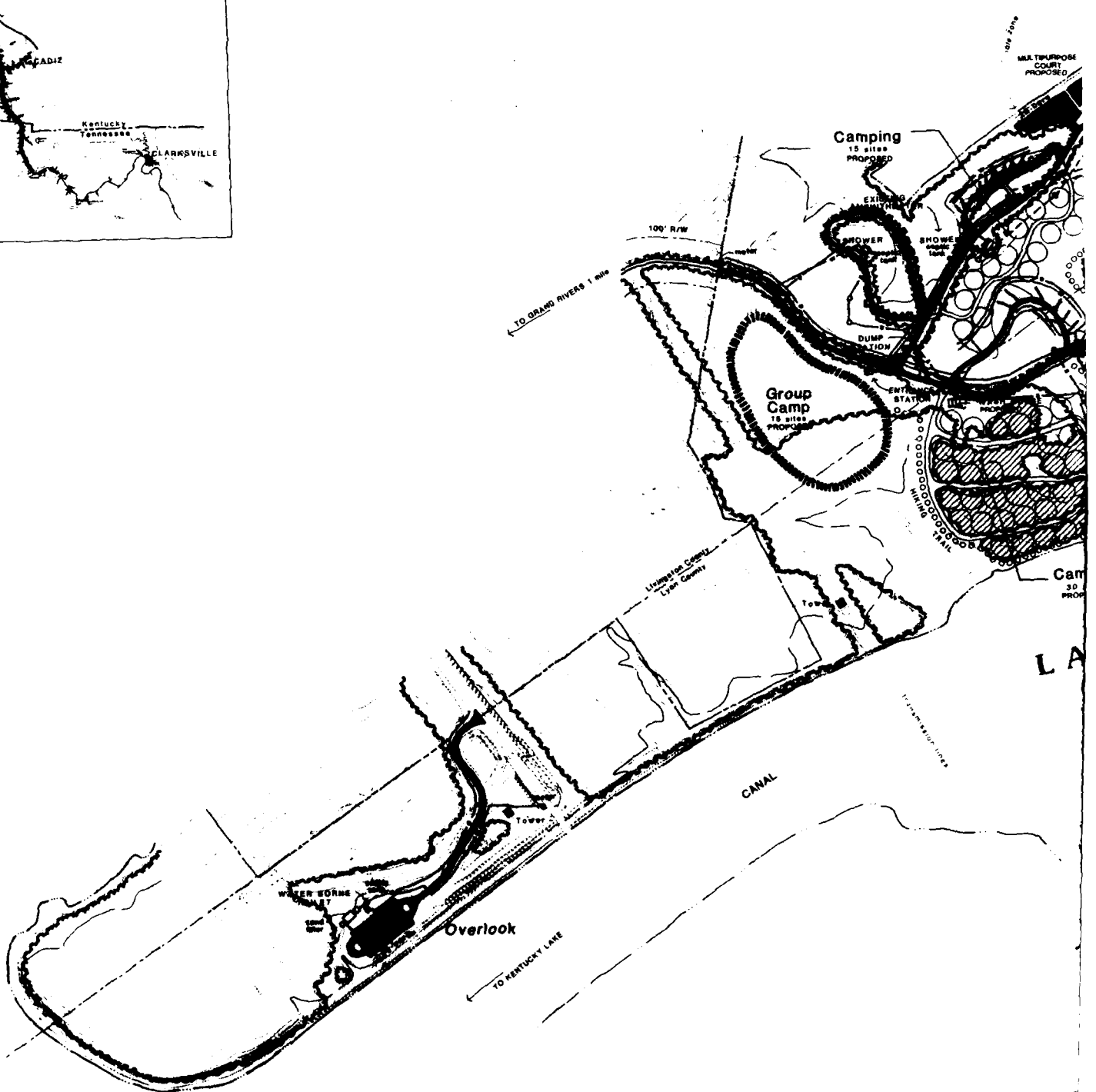
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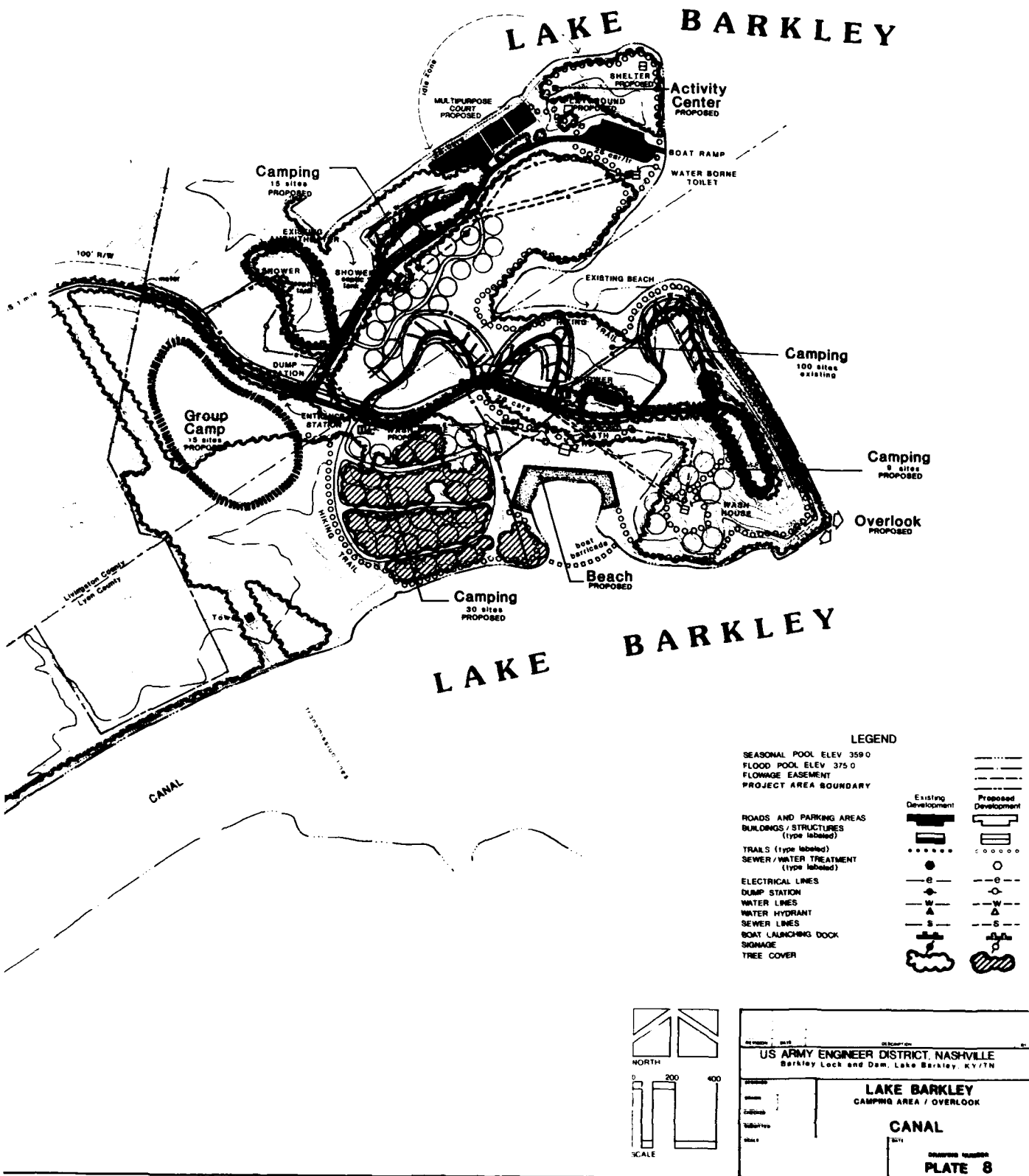


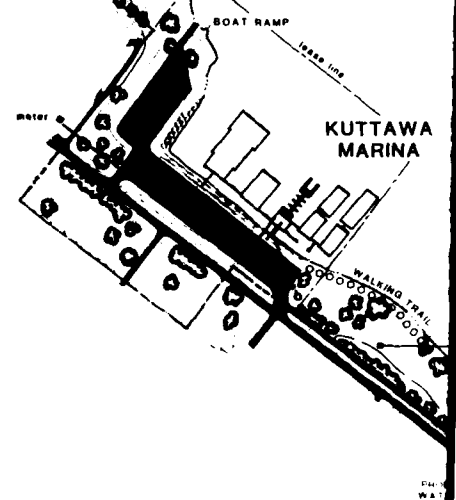
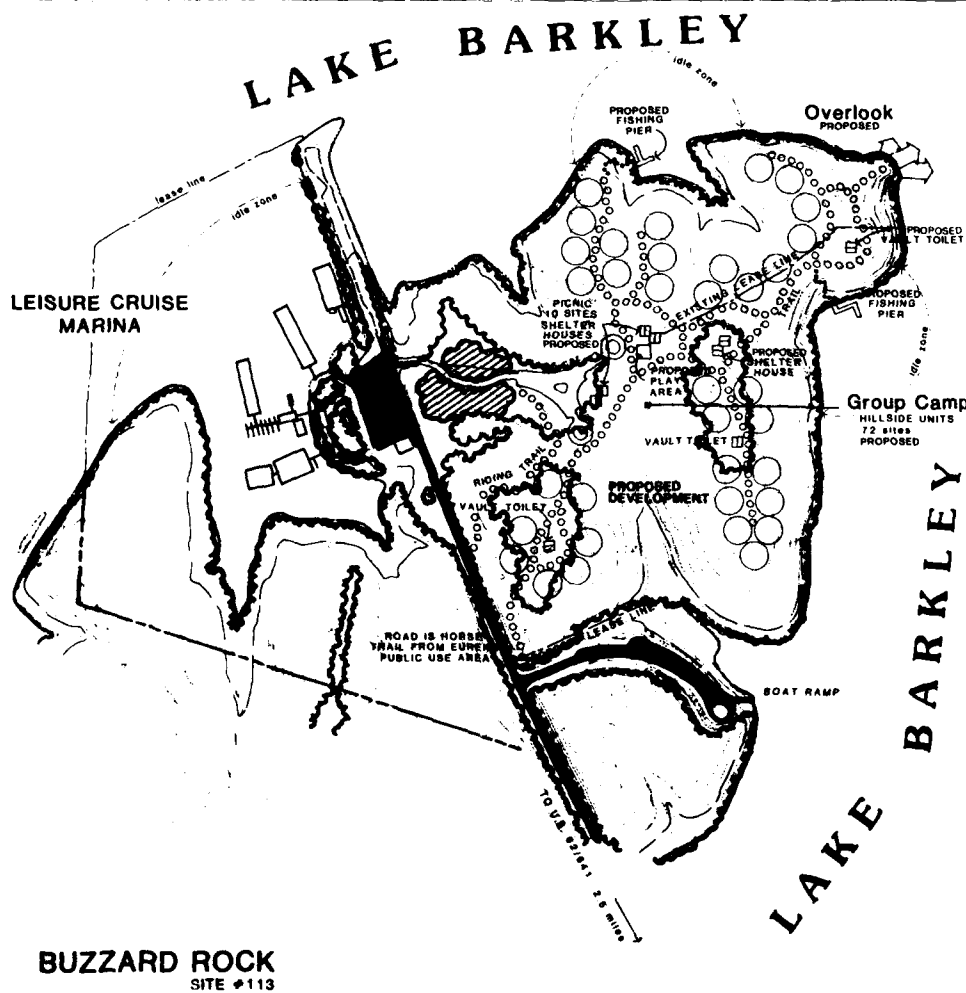
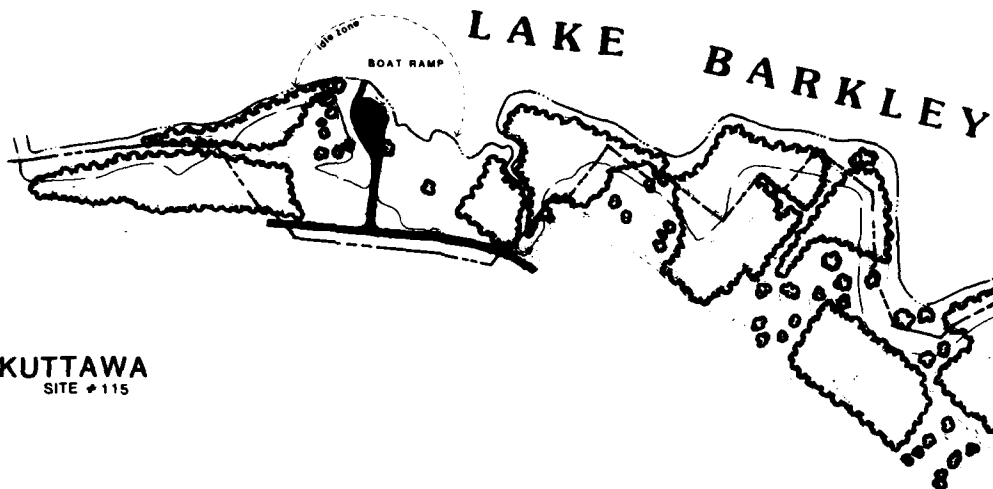
CANAL CAMPING AREA / CANAL OVERLOOK

SITE #105

SITE #205







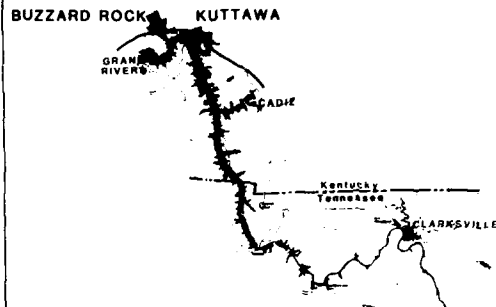
KLEY

PROPOSED
FISHING
PIER

Group Camp
HILLSIDE UNITS
72 sites
PROPOSED

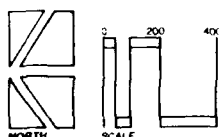
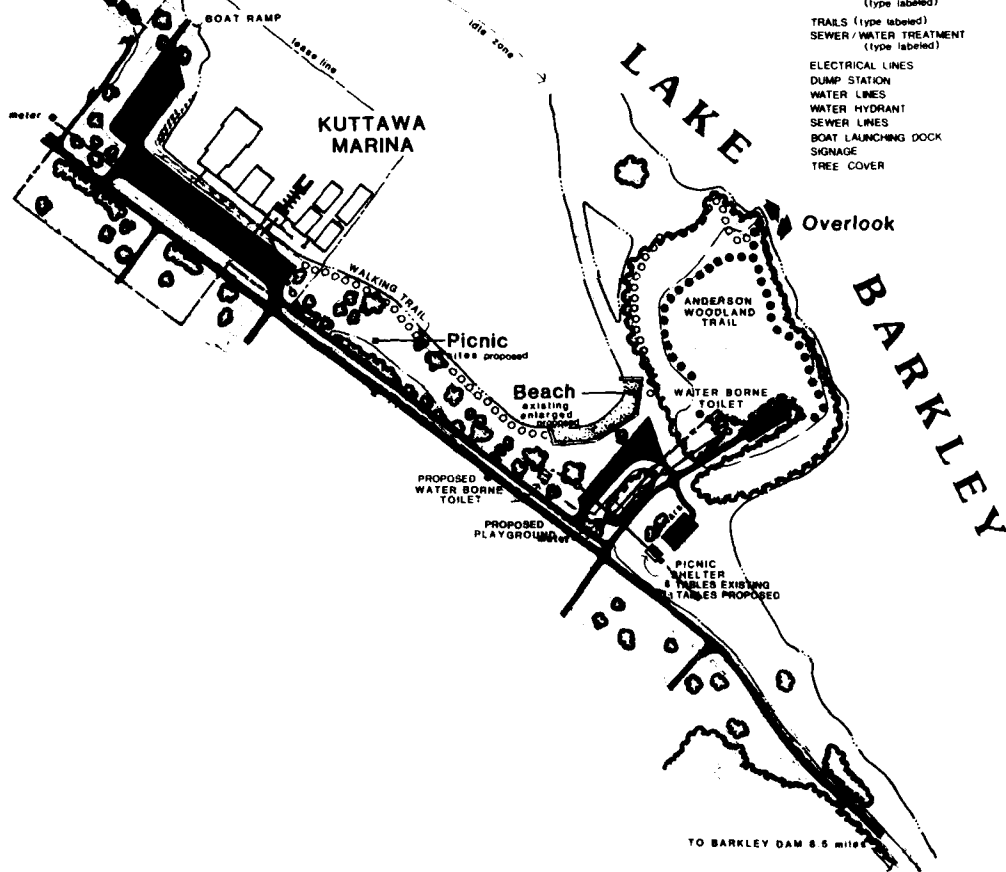
BARKLEY

LOCATION KEY



LEGEND

- SEASONAL POOL ELEV 359.0
- FLOOD POOL ELEV 375.0
- FLOWAGE EASEMENT
- PROJECT AREA BOUNDARY
- ROADS AND PARKING AREAS
- BUILDINGS / STRUCTURES (type labeled)
- TRAILS (type labeled)
- SEWER / WATER TREATMENT (type labeled)
- ELECTRICAL LINES
- DUMP STATION
- WATER LINES
- WATER HYDRANT
- SEWER LINES
- BOAT LAUNCHING DOCK
- SIGNAGE
- TREE COVER



US ARMY ENGINEER DISTRICT, NASHVILLE Barkley Lock and Dam, Lake Barkley, KY/TN	
DESIGNED BY	LAKE BARKLEY RECREATION AREAS
DRAWN BY	KUTTAWA and BUZZARD ROCK
CHECKED BY	PLATE 9

HUSSEY HOUSE
PROPOSED HISTORIC
MUSEUM

Picnic
sites existing

LAKE BARKLEY

WATER TREATMENT PLANT
CITY OF EDDYVILLE

TO US 24 3.5 miles

EDDYVILLE
SITE # 116

(Scale 1"=100')

100 0 100 200
feet

Camping
16 sites existing

Camping
29 sites existing

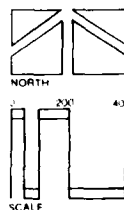
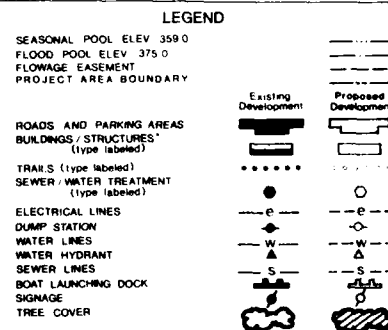
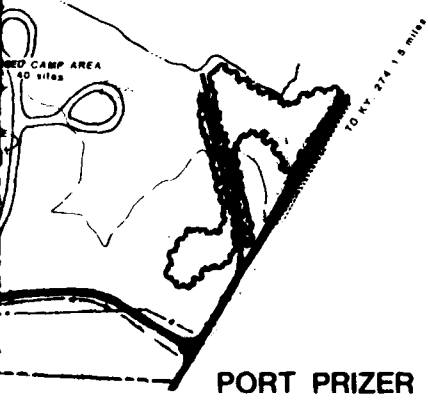
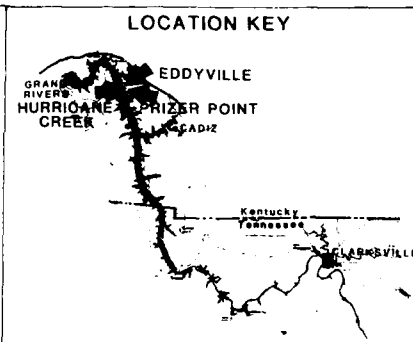
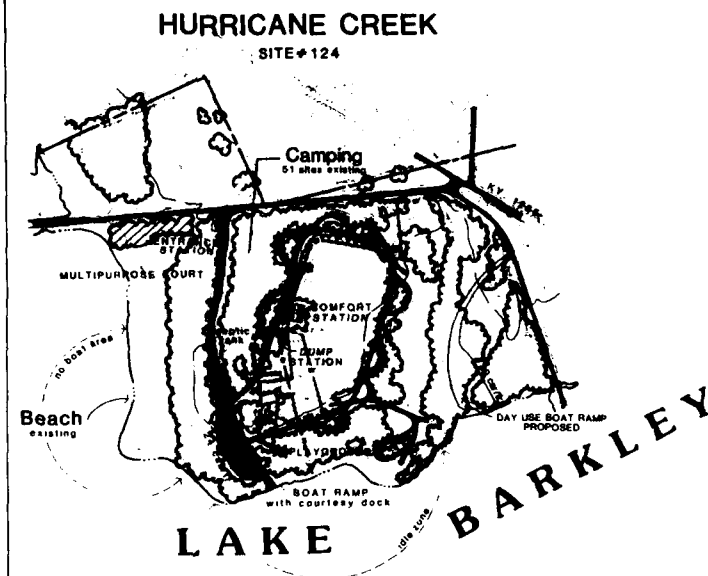
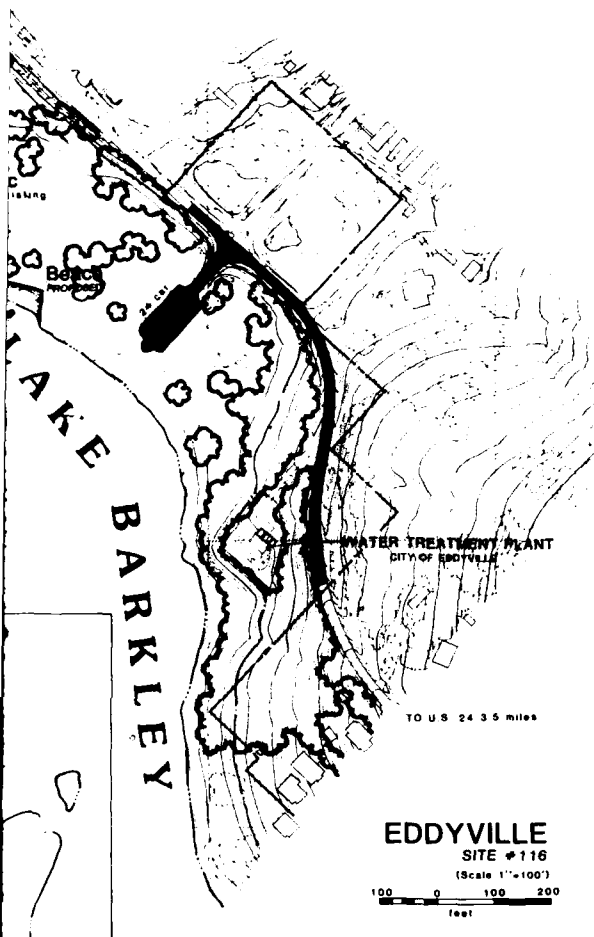
PORT PRIZER
MARINA

LAKE BARKLEY

PROPOSED CAMP AREA
40 sites

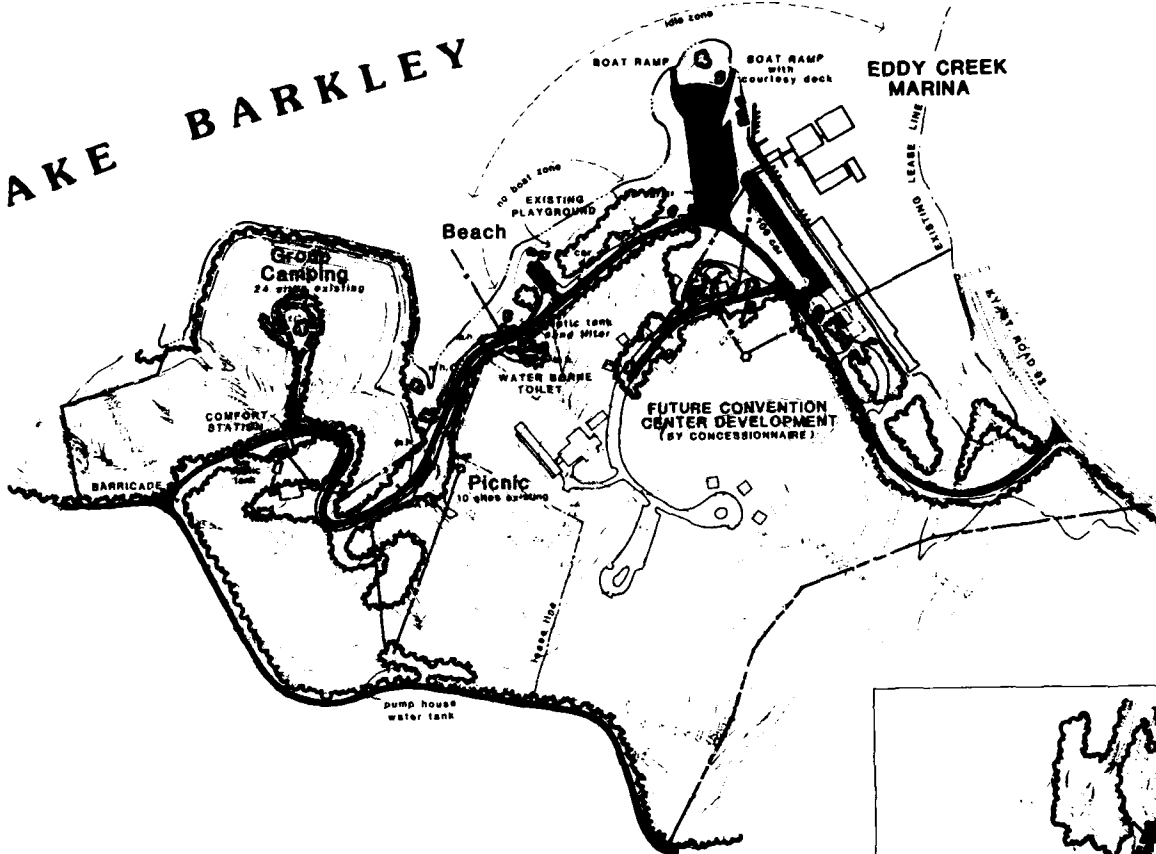
WASH HOUSE
PROPOSED

PORT PRIZER POINT
SITE # 324



US ARMY ENGINEER DISTRICT, NASHVILLE Barkley Lock and Dam, Lake Barkley, KY/TN	
LAKE BARKLEY RECREATION AREAS / CAMPING PRIZER POINT, EDDYVILLE HURRICANE CREEK	
DRAWING NUMBER PLATE 10	

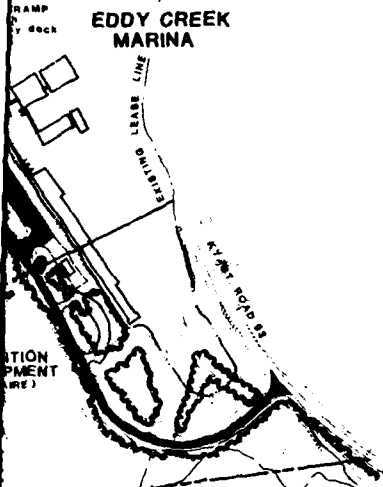
LAKE BARKLEY



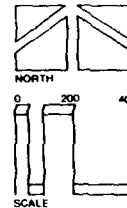
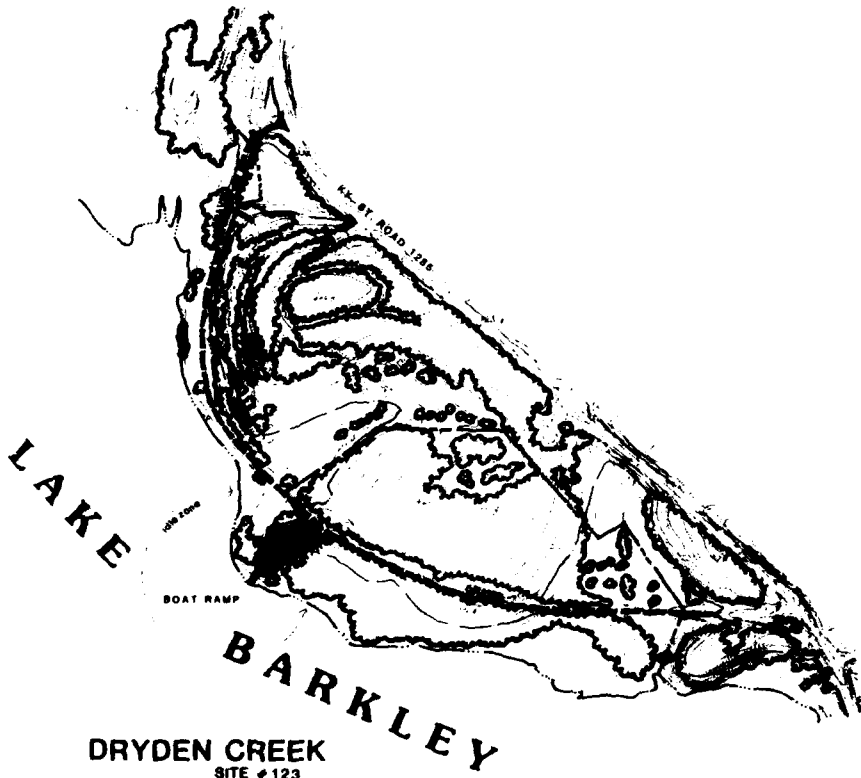
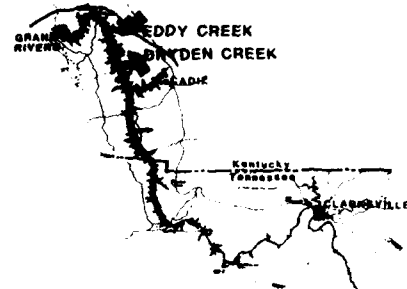
EDDY CREEK
SITE # 121



DRYDEN CREEK
SITE # 123



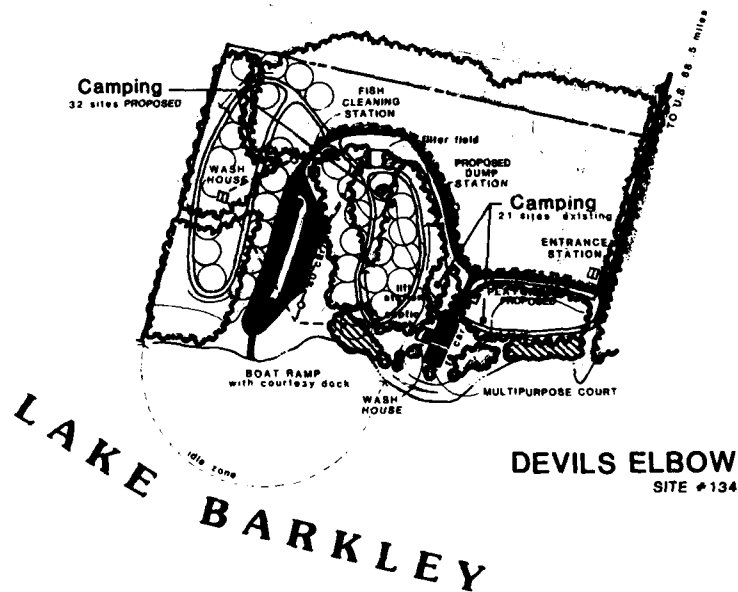
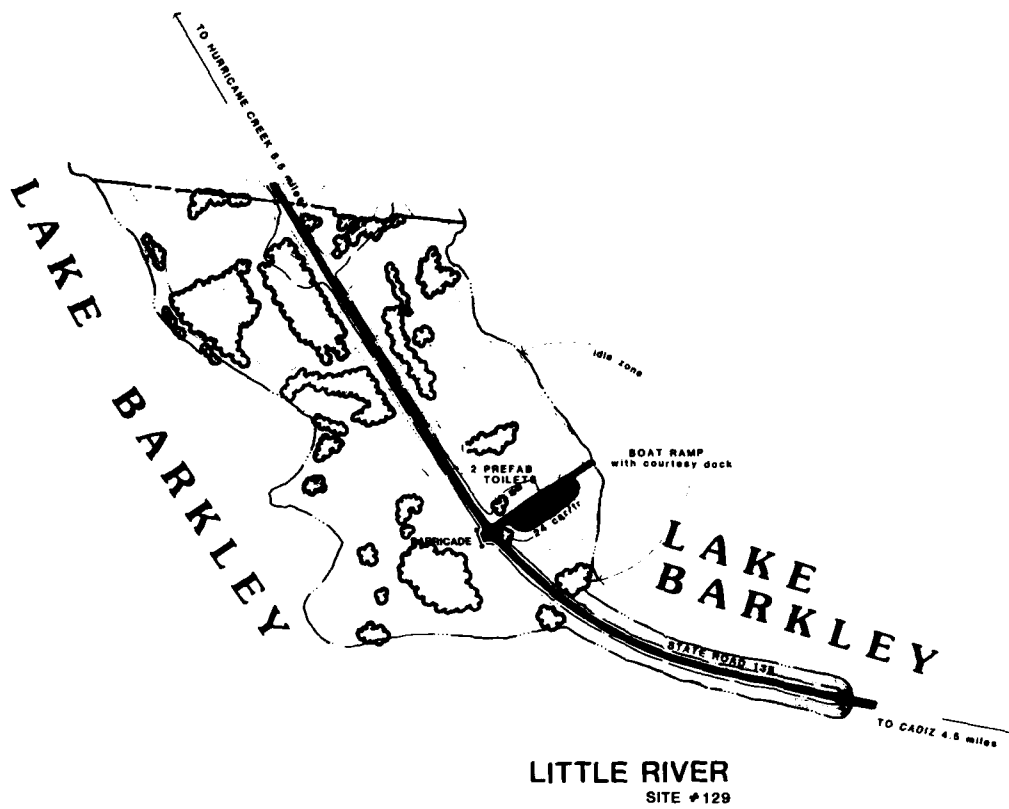
LOCATION KEY



LEGEND

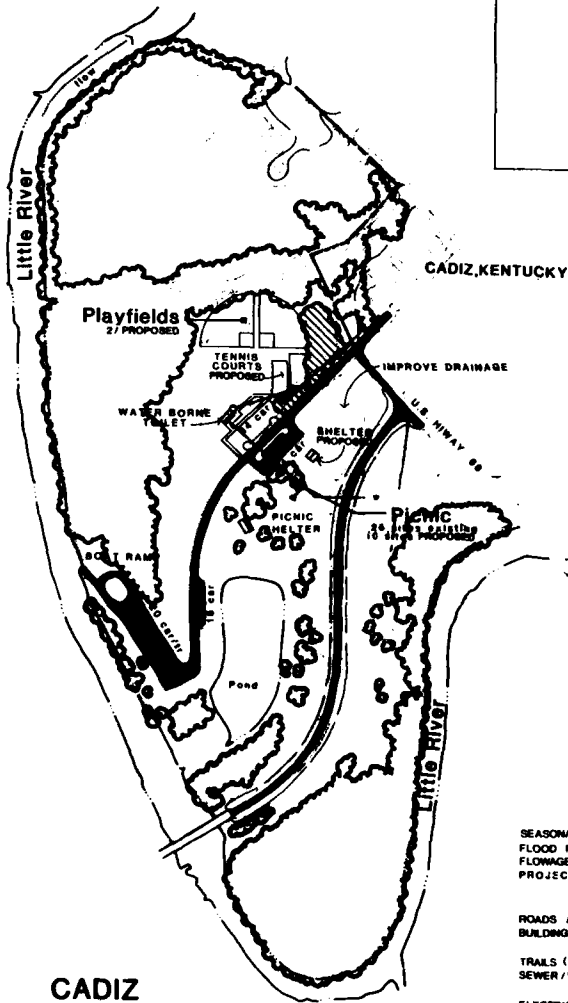
SEASONAL POOL ELEV 359.0	Existing Development	Proposed Development
FLOOD POOL ELEV 375.0	ROADS AND PARKING AREAS	BUILDINGS / STRUCTURES (type labeled)
FLOWAGE EASEMENT	TRAILS (type labeled)	SEWER / WATER TREATMENT (type labeled)
PROJECT AREA BOUNDARY	ELECTRICAL LINES	DUMP STATION
	WATER LINES	WATER HYDRANT
	SEWER LINES	BOAT LAUNCHING DOCK
	SIGNAGE	TREE COVER

US ARMY ENGINEER DISTRICT, NASHVILLE Barkley Lock and Dam, Lake Barkley, KY/TN	
LAKE BARKLEY RECREATION AREA / LAUNCHING AREA EDDY CREEK AND DRYDEN CREEK	
PLATE 11	



C
SI

LOCATION KEY



CADIZ
SITE #130

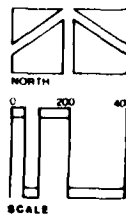
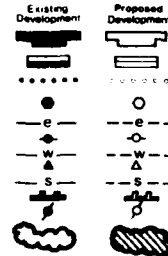
LEGEND

SEASONAL POOL ELEV 358.0
FLOOD POOL ELEV 375.0
FLOWAGE EASEMENT
PROJECT AREA BOUNDARY

ROADS AND PARKING AREAS
BUILDINGS / STRUCTURES
(type labeled)

TRAILS (type labeled)
SEWER / WATER TREATMENT
(type labeled)

ELECTRICAL LINES
PUMP STATION
WATER LINES
WATER HYDRANT
SEWER LINES
BOAT LAUNCHING DOCK
SIGNAGE
TREE COVER

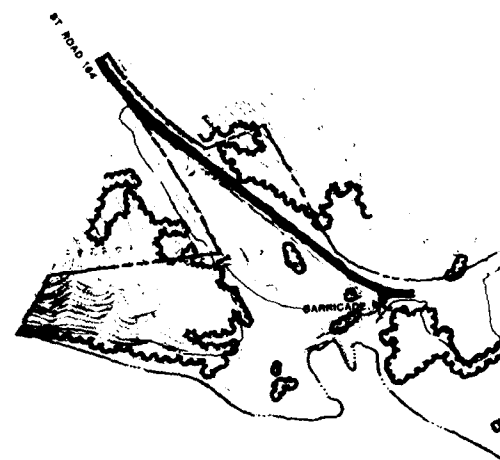
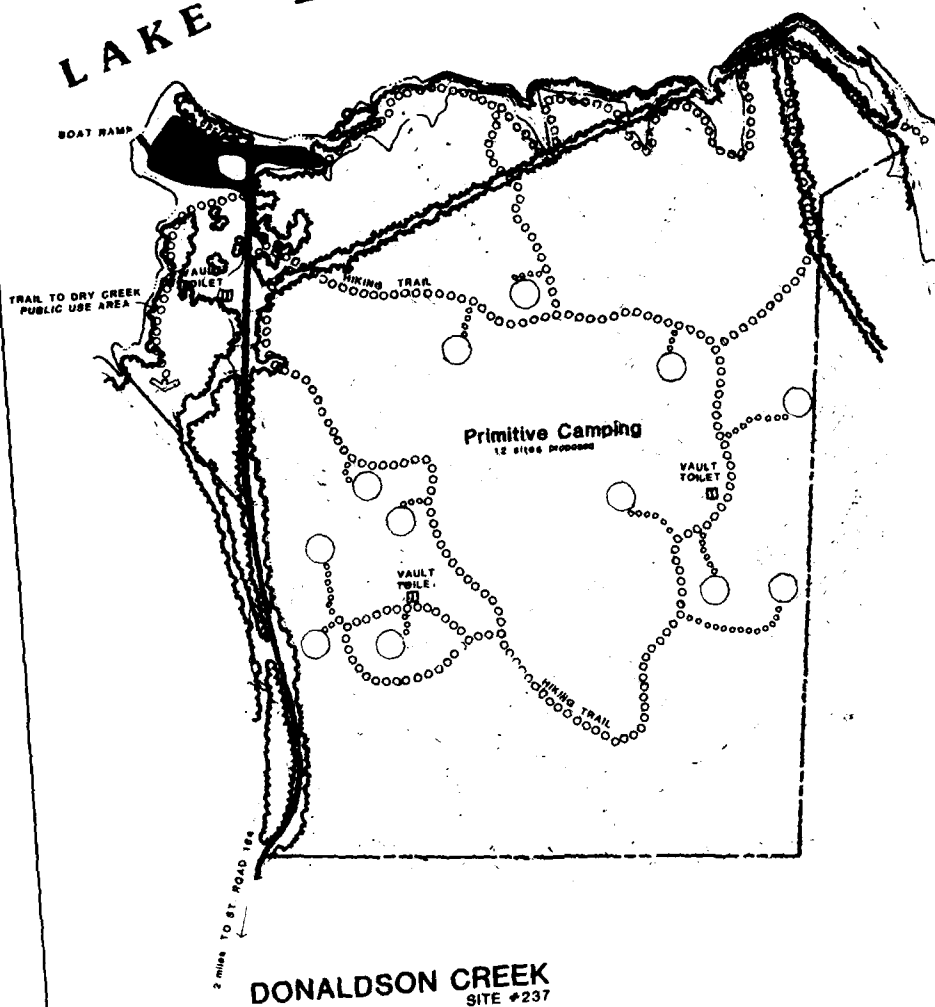


US ARMY ENGINEER DISTRICT, NASHVILLE
Barkley Lock and Dam, Lake Barkley, KY, TN

LAKE BARKLEY
RECREATION AREAS
CADIZ, LITTLE RIVER
DEVILS ELBOW

PLATE 12

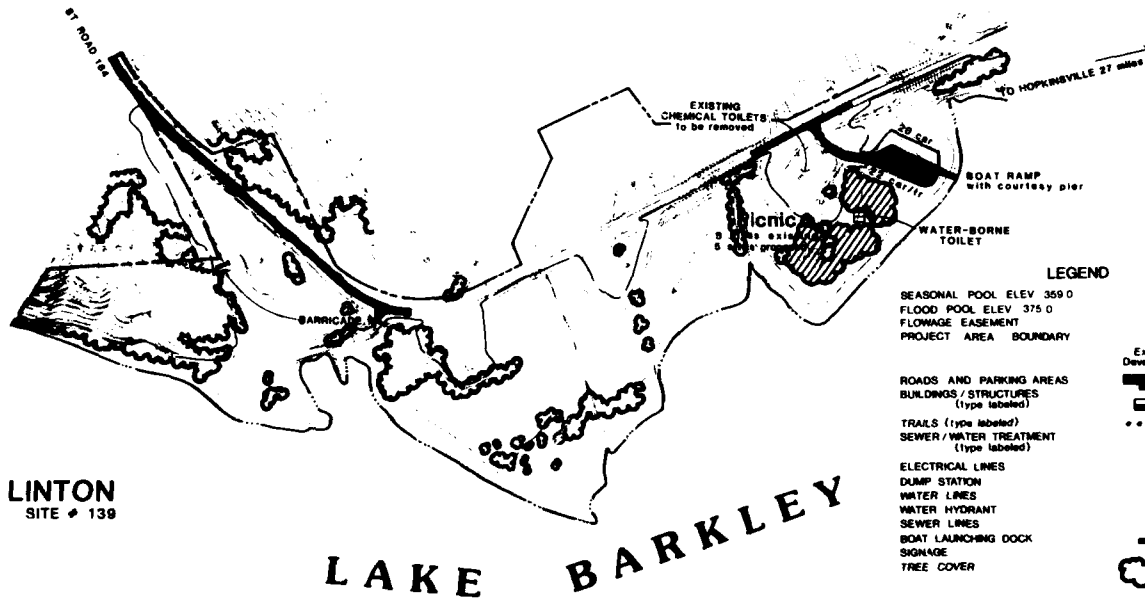
LAKE BARKLEY



LINTON
SITE # 139

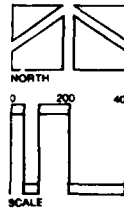
LAKE

LOCATION KEY

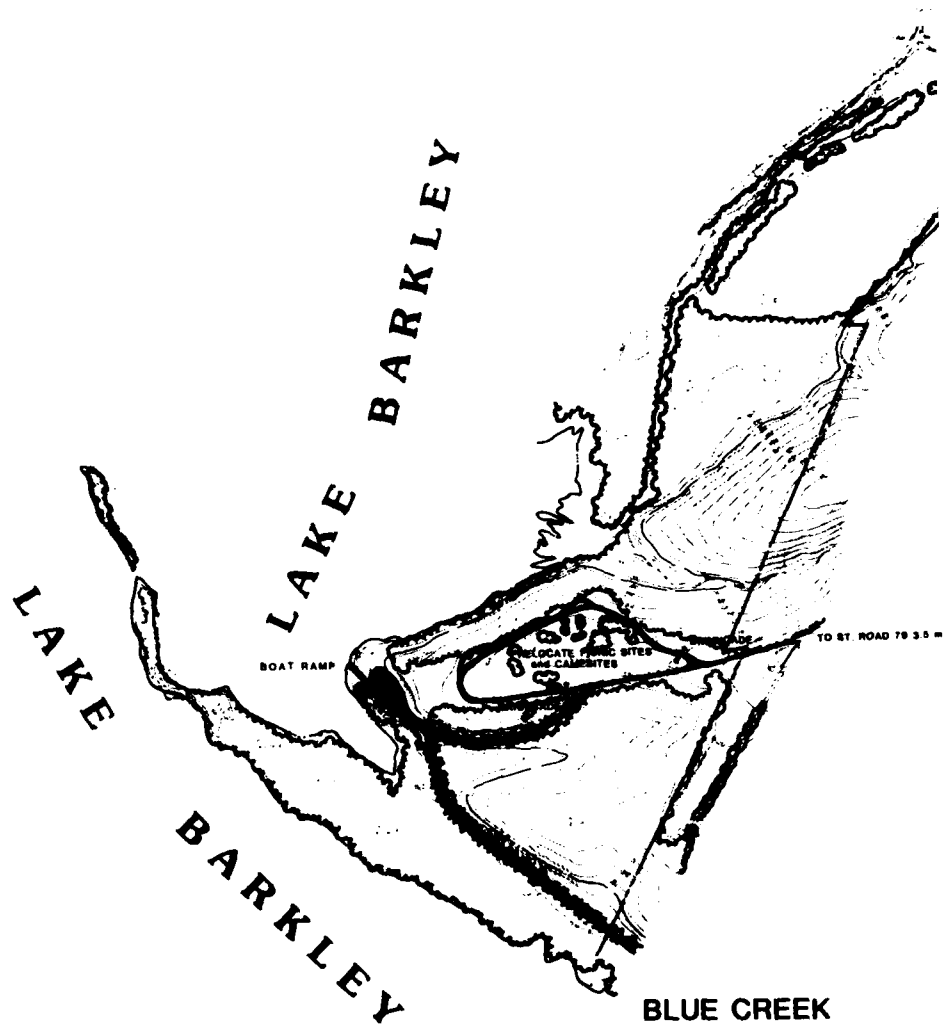


LINTON
SITE # 139

LAKE BARKLEY

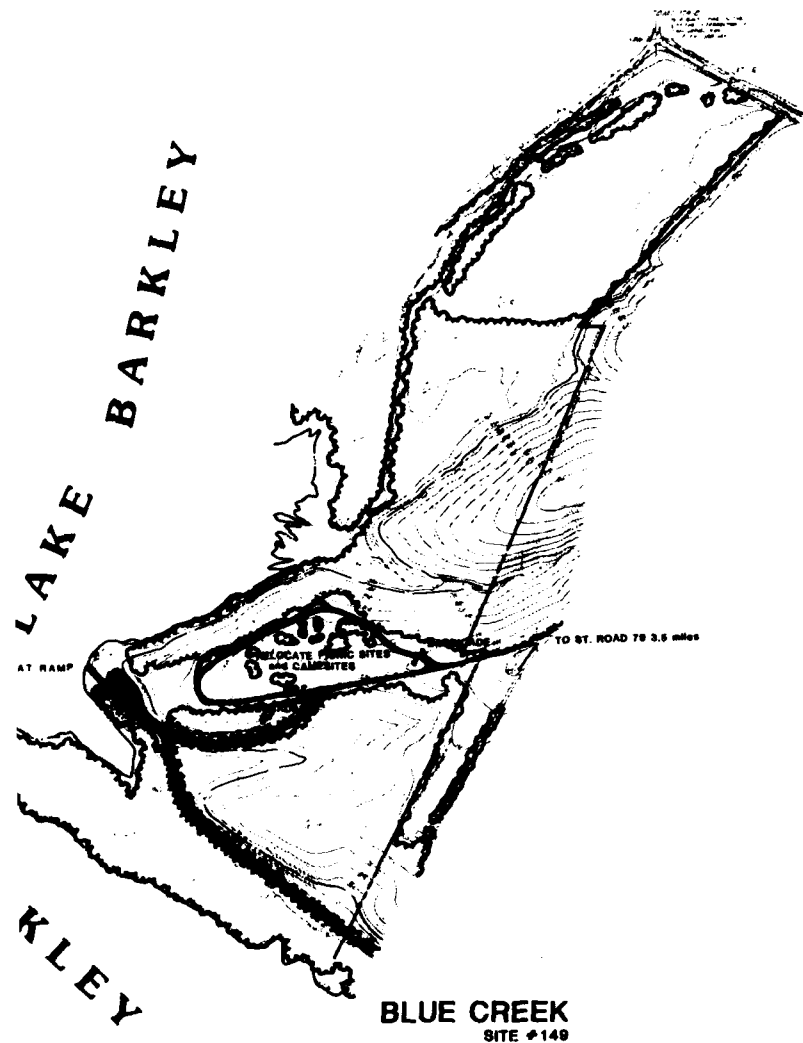


US ARMY ENGINEER DISTRICT, NASHVILLE Barkley Lock and Dam, Lake Barkley, KY/TN	
LAKE BARKLEY LAUNCHING AREA/RECREATION AREA DONALDSON CREEK LINTON	
DATE	DRAWN
SCALE	PLATE 13



BLUE CREEK
SITE #149

LOCATION KEY



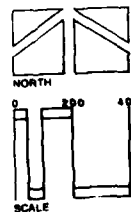
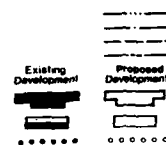
LEGEND

SEASONAL POOL ELEV 359.0
FLOOD POOL ELEV 375.0
FLOWAGE EASEMENT
PROJECT AREA BOUNDARY

ROADS AND PARKING AREAS
BUILDINGS / STRUCTURES
(type labeled)

TRAILS (type labeled)
SEWER / WATER TREATMENT
(type labeled)

ELECTRICAL LINES
DUMP STATION
WATER LINES
WATER HYDRANT
SEWER LINES
BOAT LAUNCHING DOCK
SIGNAGE
TREE COVER



US ARMY ENGINEER DISTRICT, NASHVILLE Barkley Lock and Dam, Lake Barkley, KY/TN	
LAKE BARKLEY RECREATION AREA	
BLUE CREEK	
DATE: _____ DRAWN BY: _____ CHECKED BY: _____ DESIGNED BY: _____	PLATE 14

2

LAKE BARKLEY

TO CLARKSVILLE 24 miles

U.S. HWY 75

BOAT RAMP

17 car
20 car/yr

DOCK SITE

40 car

PICNIC SHELTER

WATER BARGE
TOILET
Picnic
13 sites existing

BARRICADE

TO DOVY TENN. 5 miles

DYERS CREEK
SITE #151

LAKE BARKLEY

LAKE BARKLEY

BOAT RAMP

27 car
20 car/yr

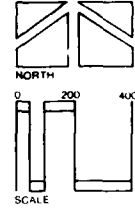
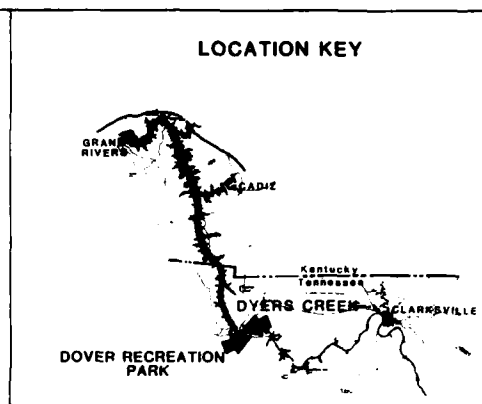
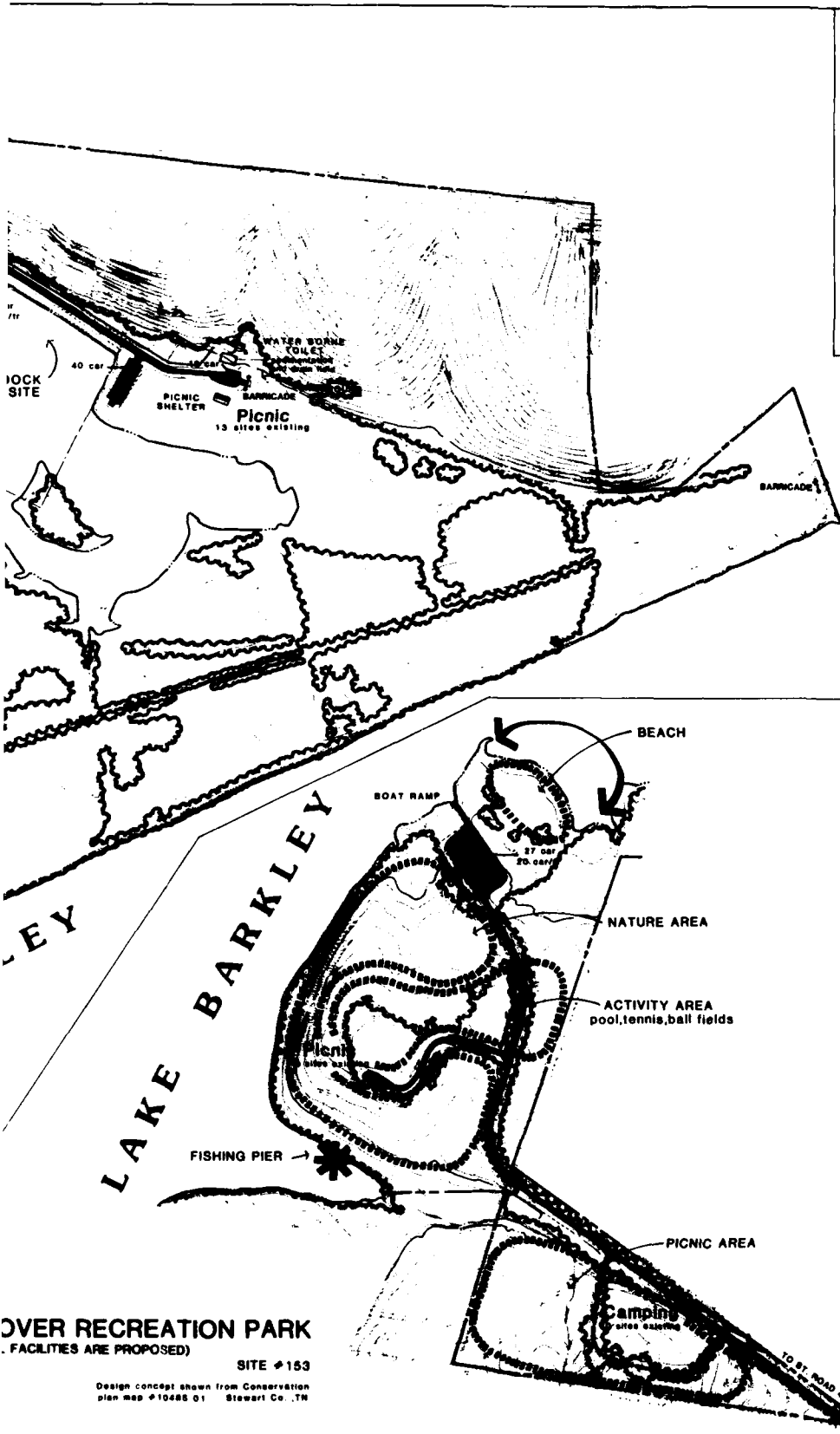
Picnic

FISHING PIER

DOVER RECREATION PARK
(ALL FACILITIES ARE PROPOSED)

SITE #153

Design concept shown from Conservation
plan map #10485 01 Stewart Co. TN



LEGEND

SEASONAL POOL ELEV 359.0	Existing Development	Proposed Development
FLOOD POOL ELEV 375.0	ROADS AND PARKING AREAS	
FLOWAGE EASEMENT	BUILDINGS / STRUCTURES (type labeled)	
PROJECT AREA BOUNDARY	TRAILS (type labeled)	
	SEWER / WATER TREATMENT (type labeled)	
	ELECTRICAL LINES	
	DUMP STATION	
	WATER LINES	
	WATER HYDRANT	
	SEWER LINES	
	BOAT LAUNCHING DOCK	
	SIGNAGE	
	TREE COVER	

DOVER RECREATION PARK
FACILITIES ARE PROPOSED

SITE #153

Design concept shown from Conservation
plan map #10485 01 Stewart Co., TN

US ARMY ENGINEER DISTRICT, NASHVILLE Barkley Lock and Dam, Lake Barkley, KY/TN	
DESIGNED DRAWN CHECKED REVISIONS	LAKE BARKLEY RECREATION AREAS DYERS CREEK AND DOVER RECREATION PARK DRAWN: TROSBY PLATE 15

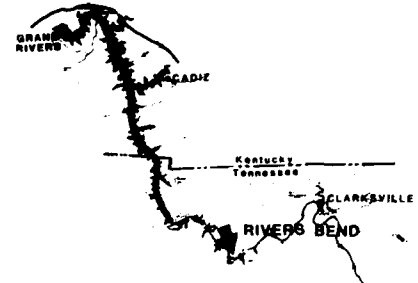
LAKE BARKLEY



RIVERS BEND
SITE #255



LOCATION KEY



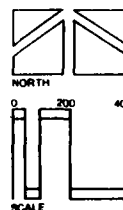
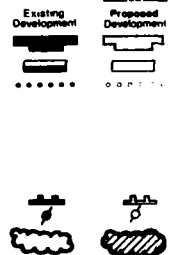
LEGEND

SEASONAL POOL ELEV 359.0
FLOOD POOL ELEV 375.0
FLOWAGE EASEMENT
PROJECT AREA BOUNDARY

ROADS AND PARKING AREAS
BUILDINGS / STRUCTURES
(type labeled)

TRAILS (type labeled)
SEWER / WATER TREATMENT
(type labeled)

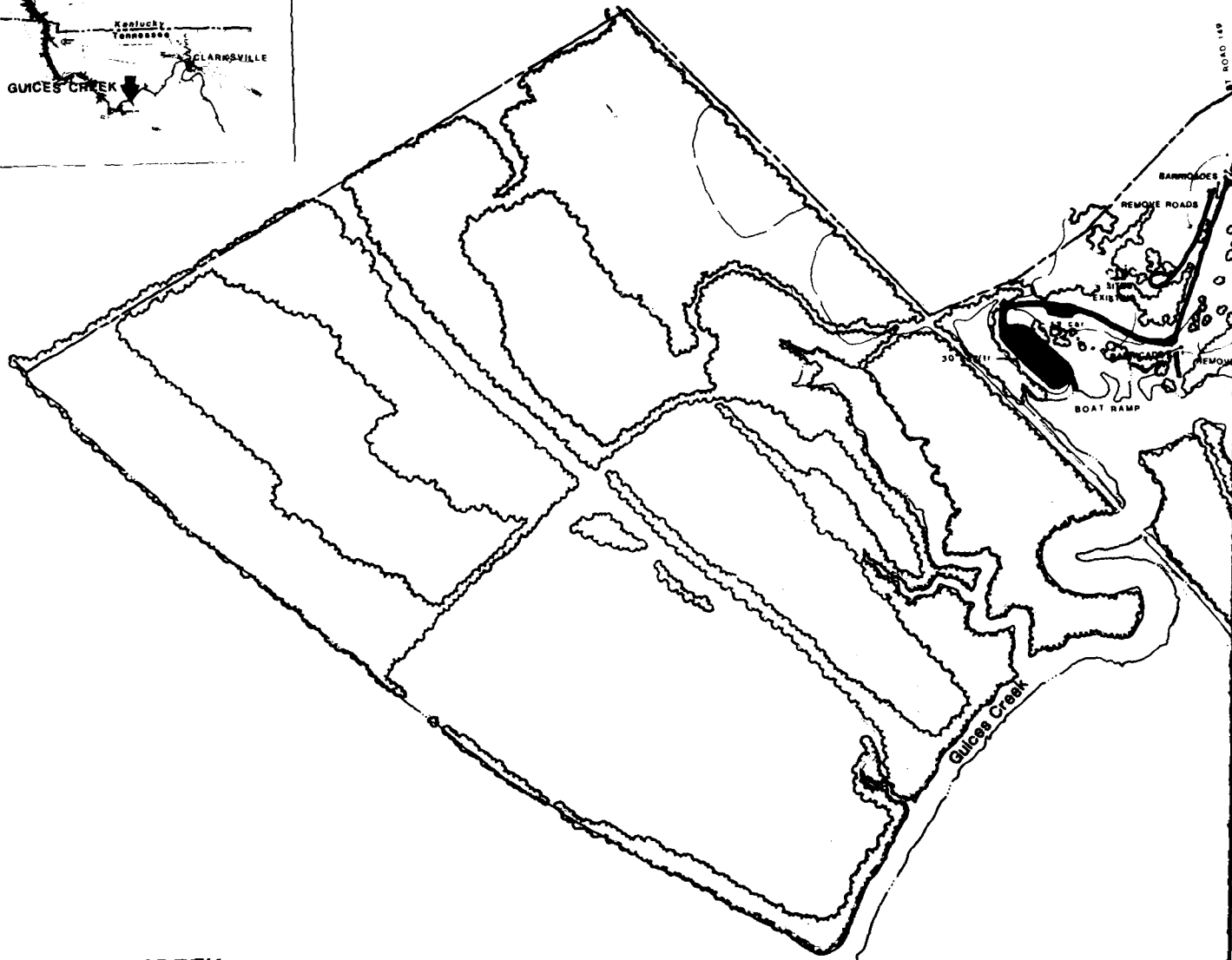
ELECTRICAL LINES
DUMP STATION
WATER LINES
WATER HYDRANT
SEWER LINES
BOAT LAUNCHING DOCK
SIGNAGE
TREE COVER



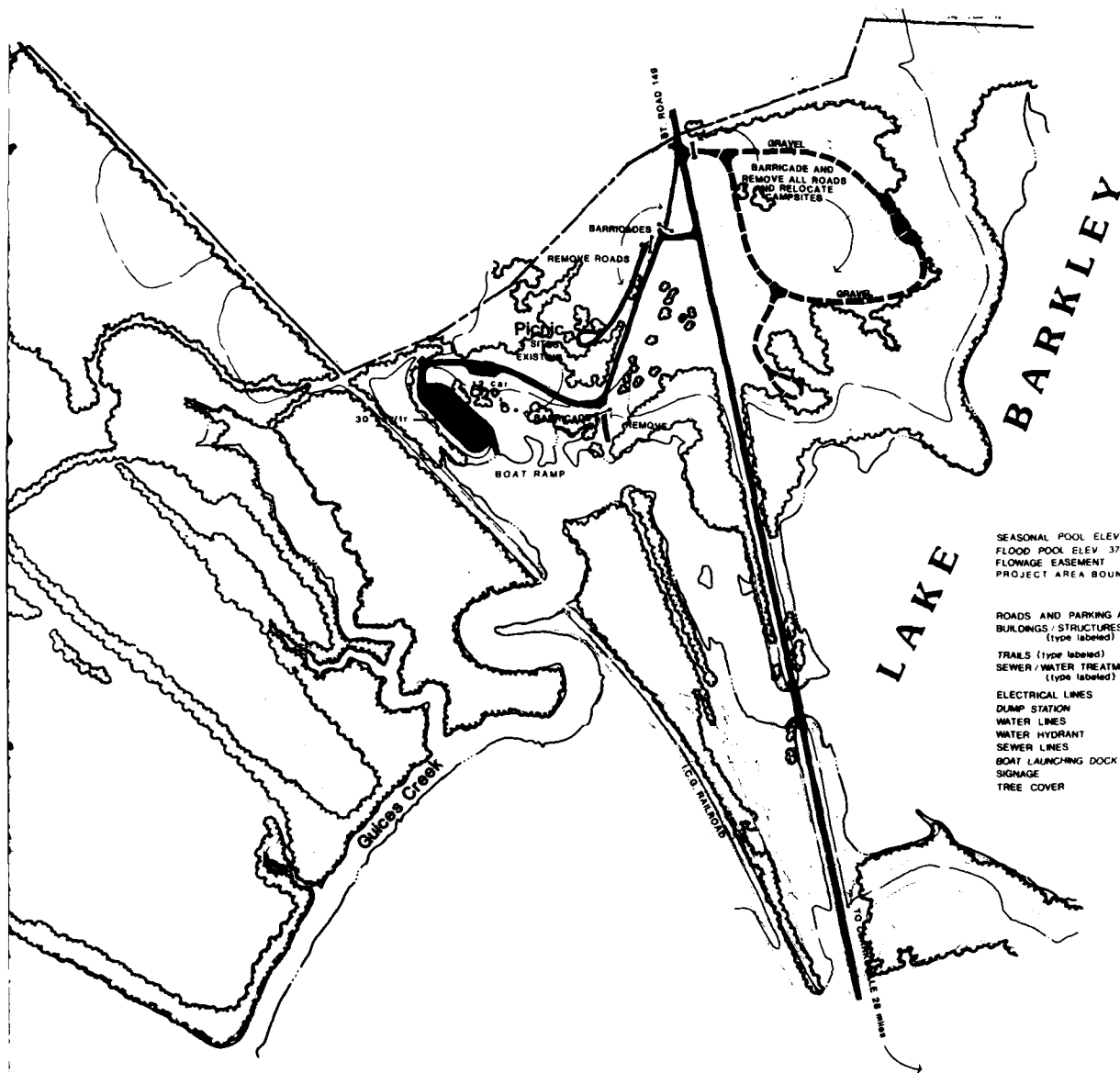
REVISION	DATE	DESCRIPTION
US ARMY ENGINEER DISTRICT, NASHVILLE Barkley Lock and Dam, Lake Barkley, KY/TN		
LAKE BARKLEY LAUNCHING AREA		
RIVERS BEND		
DRAWING NUMBER PLATE 16		

2

LOCATION KEY



GUICES CREEK
SITE #158

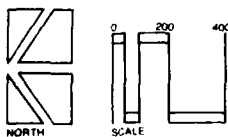
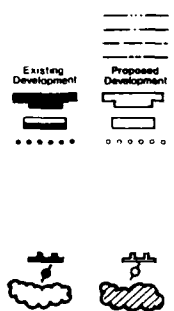


LEGEND

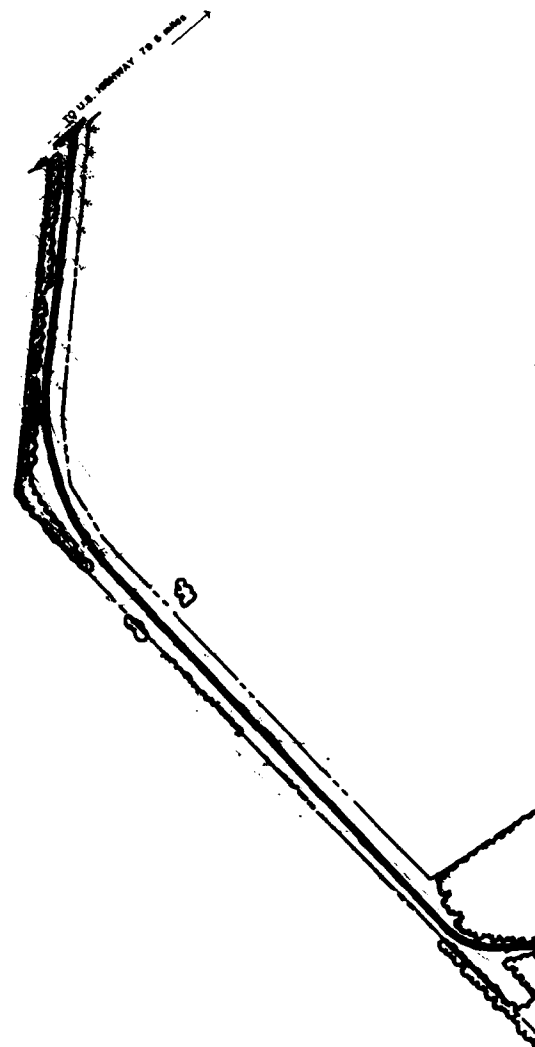
SEASONAL POOL ELEV. 359.0
 FLOOD POOL ELEV. 375.0
 FLOWAGE EASEMENT
 PROJECT AREA BOUNDARY

ROADS AND PARKING AREAS
 BUILDINGS / STRUCTURES
 (type labeled)
 TRAILS (type labeled)
 SEWER / WATER TREATMENT
 (type labeled)

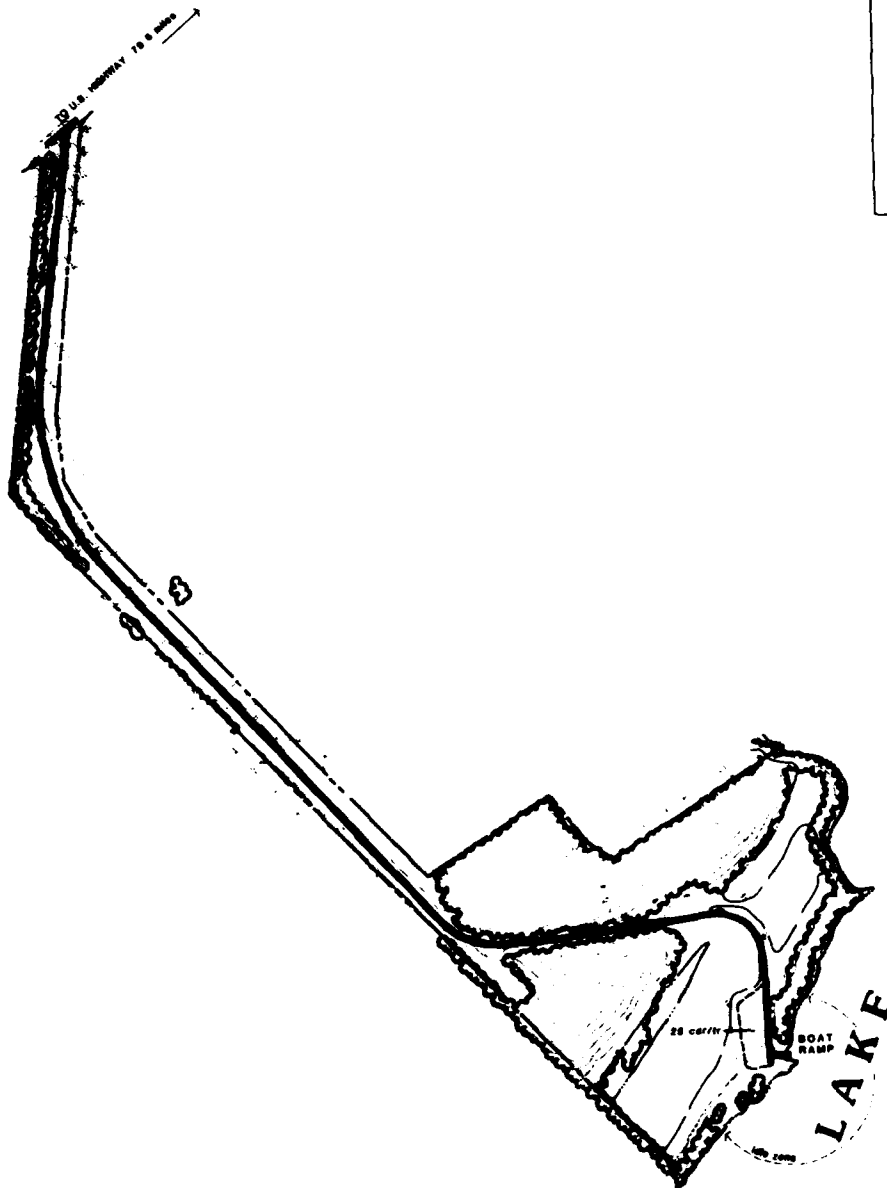
ELECTRICAL LINES
 DUMP STATION
 WATER LINES
 WATER HYDRANT
 SEWER LINES
 BOAT LAUNCHING DOCK
 SIGNAGE
 TREE COVER



US ARMY ENGINEER DISTRICT, NASHVILLE Barkley Lock and Dam, Lake Barkley, KY/TN	
DATE: _____ DRAWN BY: _____ CHECKED BY: _____ APPROVED BY: _____	LAKE BARKLEY RECREATION AREA GUICES CREEK SHEET NUMBER PLATE 17



SMITHS BRANCH
SITE #262



SMITHS BRANCH
SITE #202

LOCATION KEY



BARKLEY

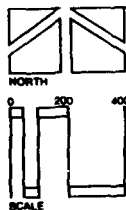
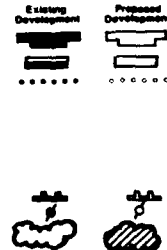
LEGEND

SEASONAL POOL ELEV 359.0
FLOOD POOL ELEV 375.0
FLOWAGE EASEMENT
PROJECT AREA BOUNDARY

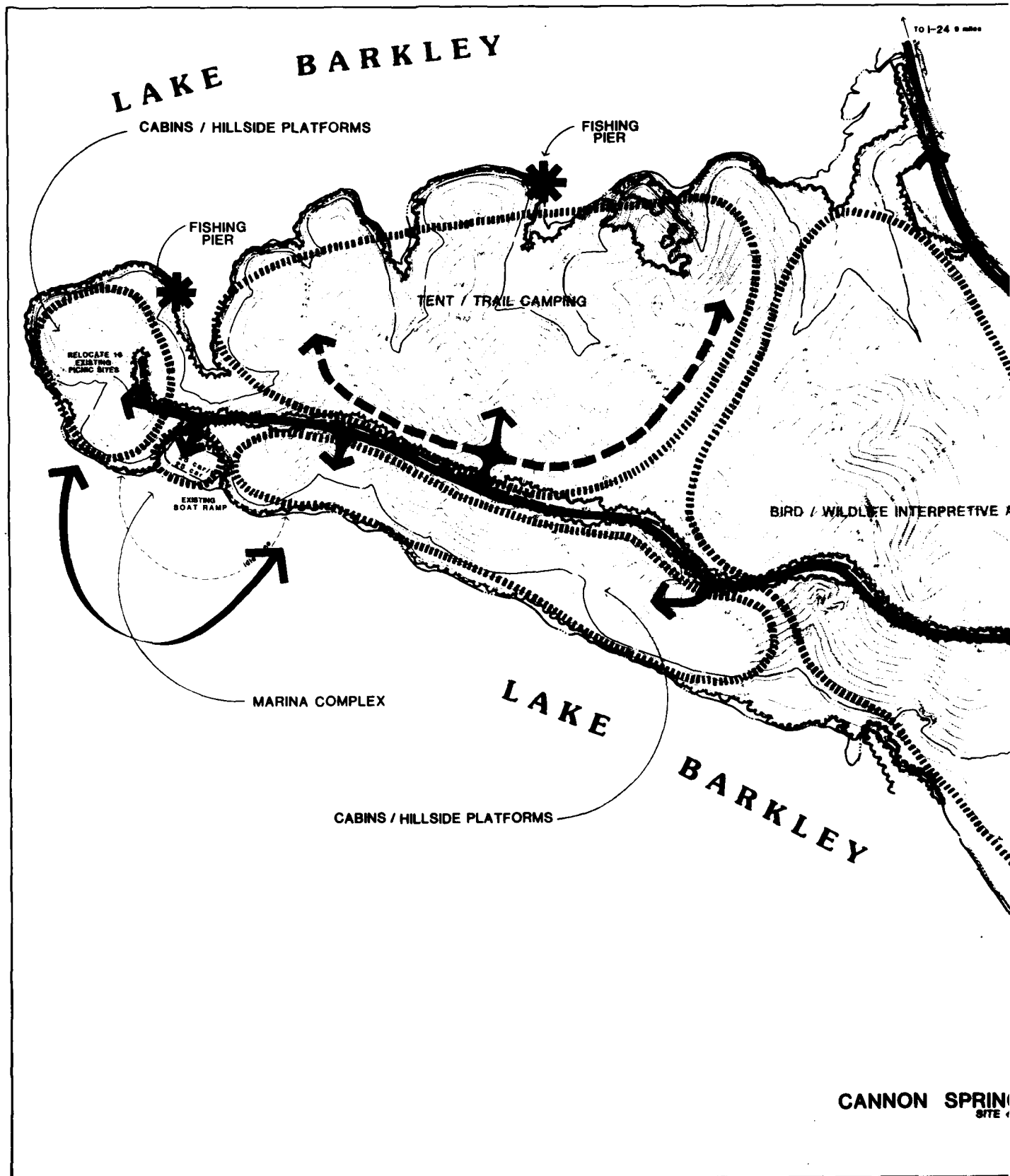
ROADS AND PARKING AREAS
BUILDINGS / STRUCTURES
(type labeled)

TRAILS (type labeled)
SEWER / WATER TREATMENT
(type labeled)

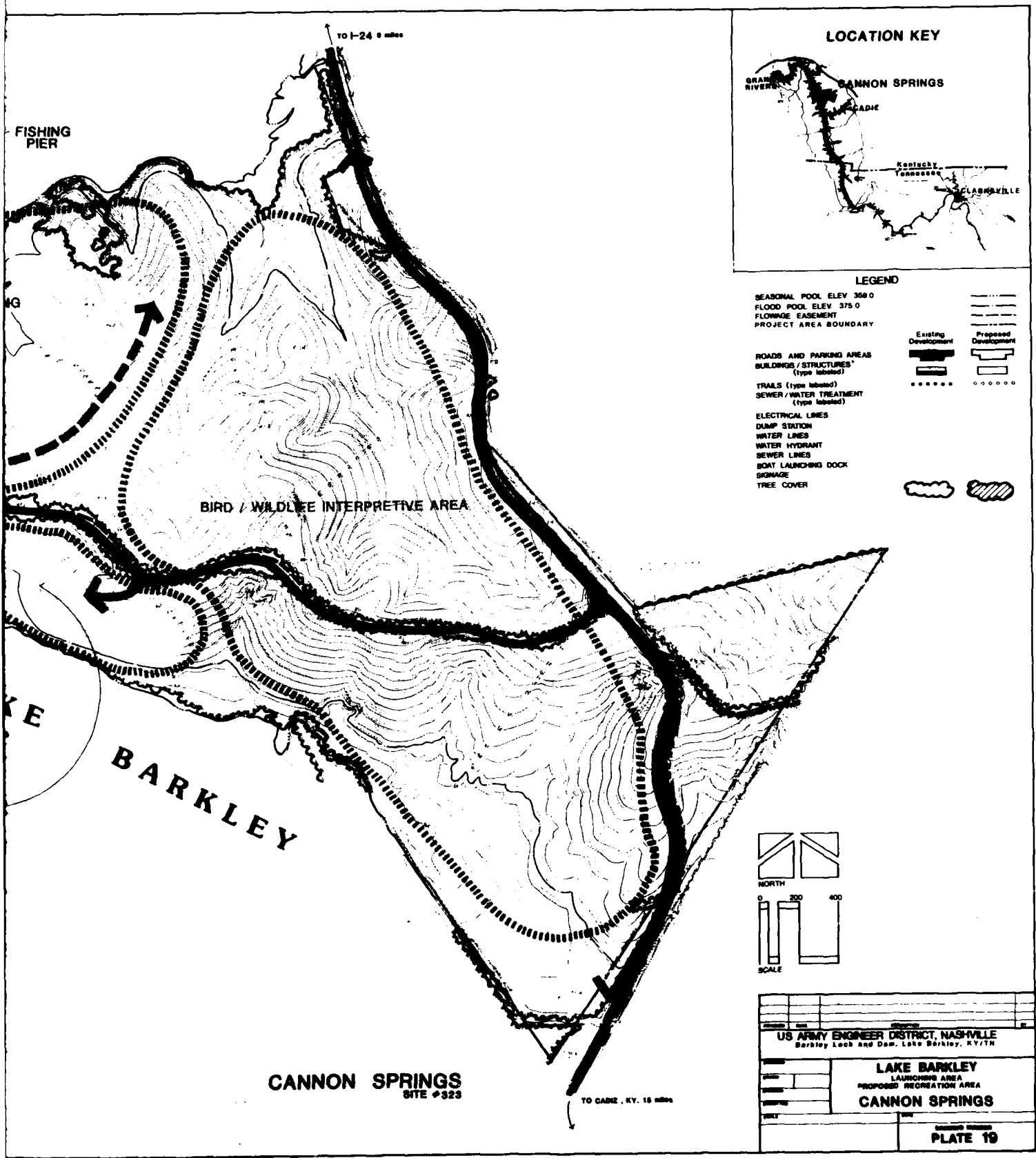
ELECTRICAL LINES
DUMP STATION
WATER LINES
WATER HYDRANT
SEWER LINES
BOAT LAUNCHING DOCK
SIGNAGE
TREE COVER

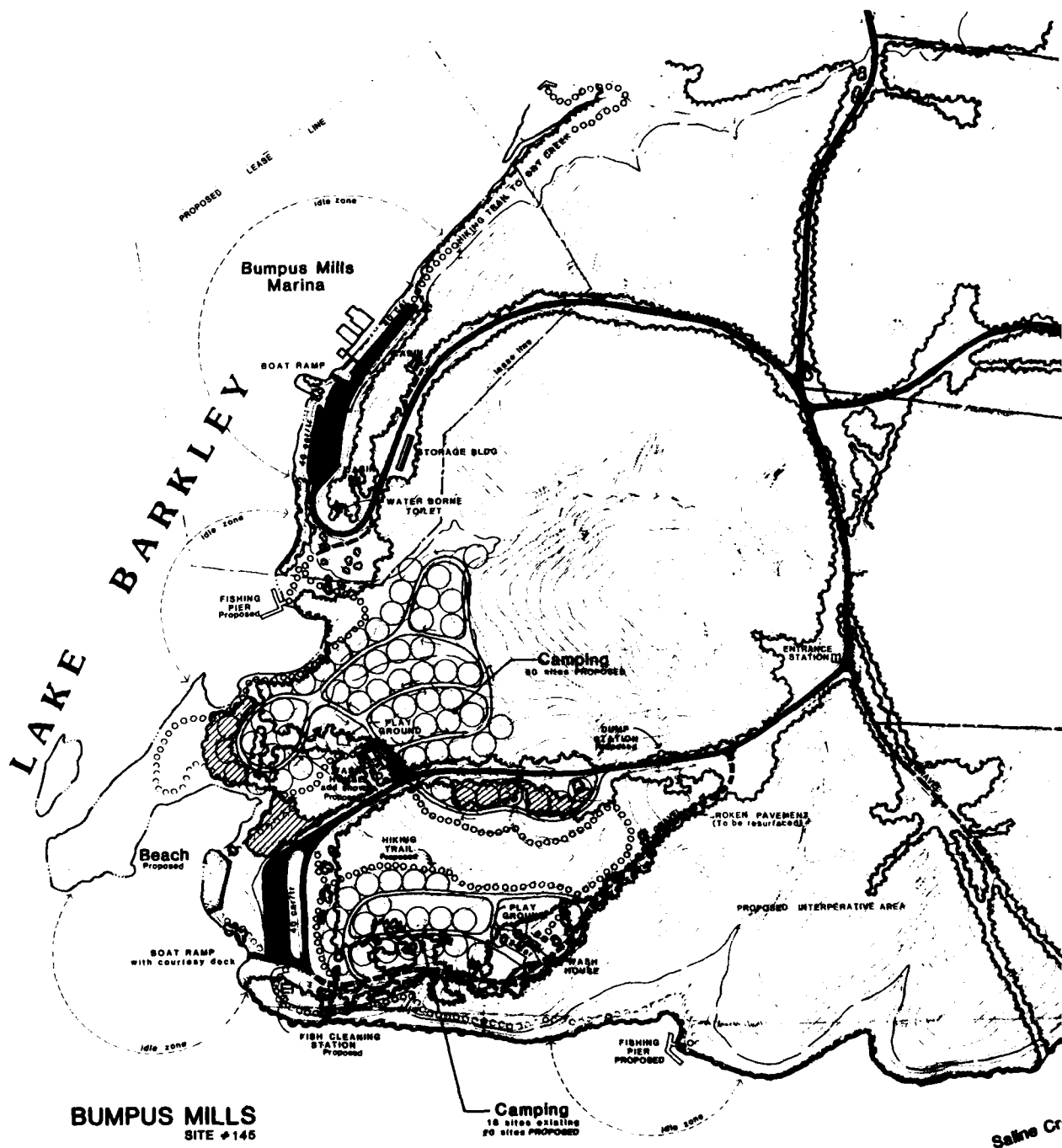


US ARMY ENGINEER DISTRICT, NASHVILLE	
Barkley Lock and Dam, Lake Barkley, KY/TN	
LAKE BARKLEY	
LAUNCHING AREA	
SMITHS BRANCH	
DRAWING NUMBER	
PLATE 18	



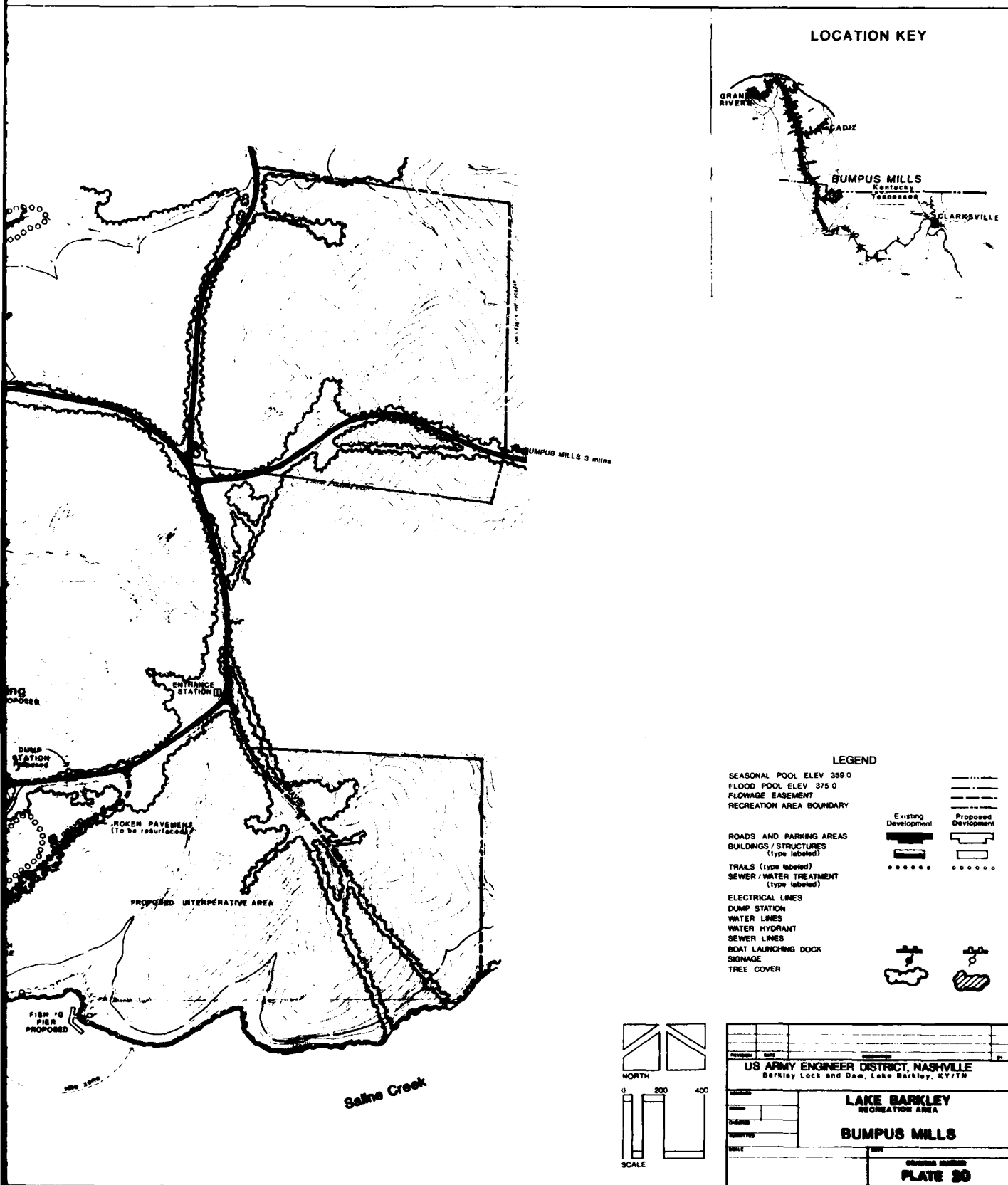
CANNON SPRING
SITE 4



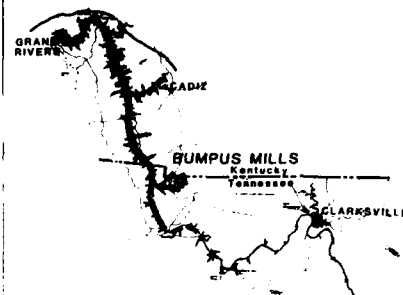


BUMPUS MILLS
SITE #145

Saline Cr

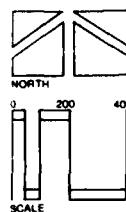


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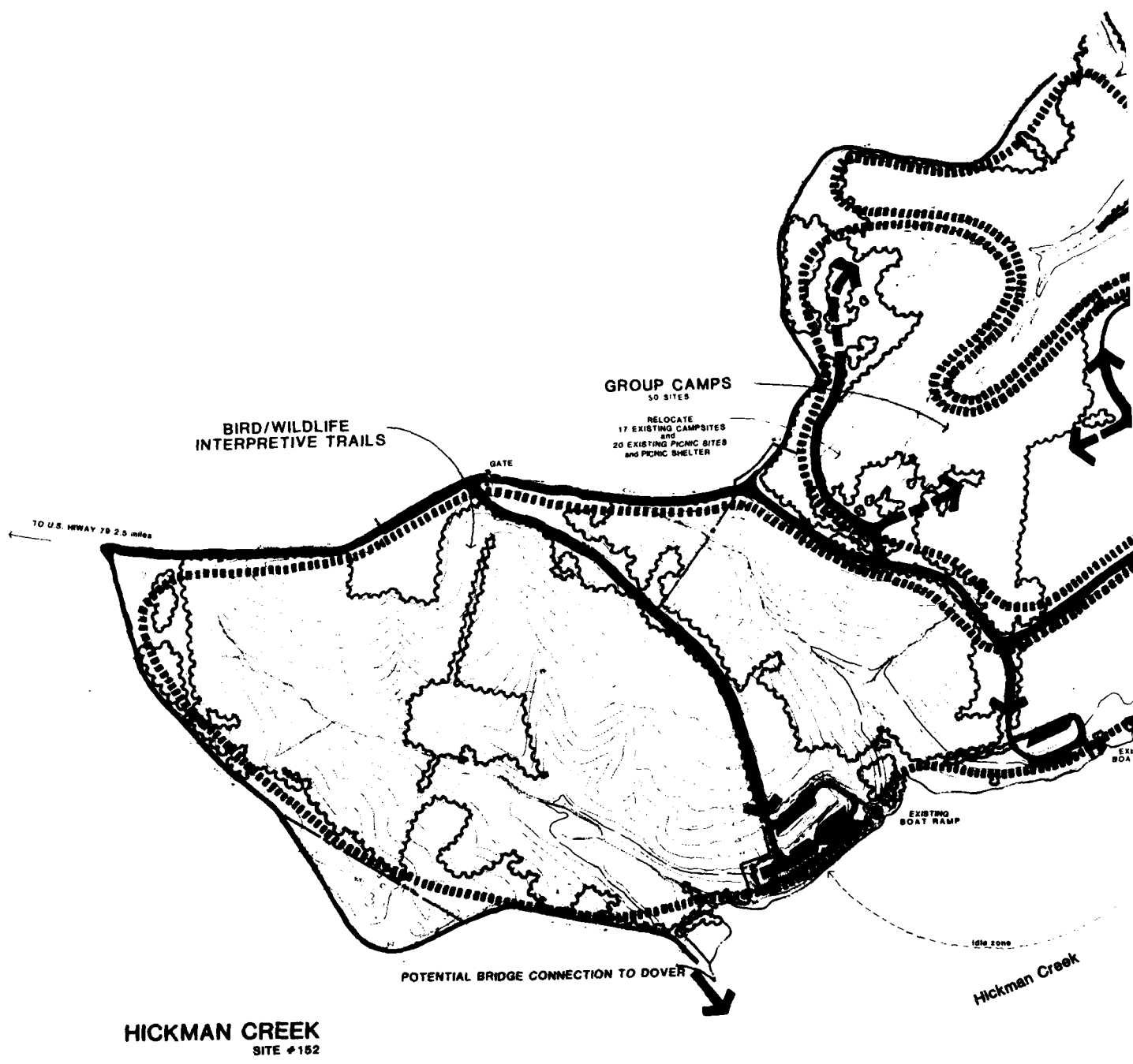


LEGEND

SEASONAL POOL ELEV 359.0	Existing Development
FLOOD POOL ELEV 375.0	Proposed Development
FLOWAGE EASEMENT	
RECREATION AREA BOUNDARY	
ROADS AND PARKING AREAS	
BUILDINGS / STRUCTURES (type labeled)	
TRAILS (type labeled)	
SEWER / WATER TREATMENT (type labeled)	
ELECTRICAL LINES	
DUMP STATION	
WATER HYDRANT	
SEWER LINES	
BOAT LAUNCHING DOCK	
SIGNAGE	
TREE COVER	



US ARMY ENGINEER DISTRICT, NASHVILLE	
Barkley Lock and Dam, Lake Barkley, KY/TN	
LAKE BARKLEY RECREATION AREA	
BUMPUS MILLS	
PLATE 20	



HICKMAN CREEK
SITE #152

GROUP CAMPS
50 SITES
RELOCATE
17 EXISTING CAMPSITES
AND
20 EXISTING PICNIC SITES
AND PICNIC SHELTER

BIRD/WILDLIFE
INTERPRETIVE TRAILS

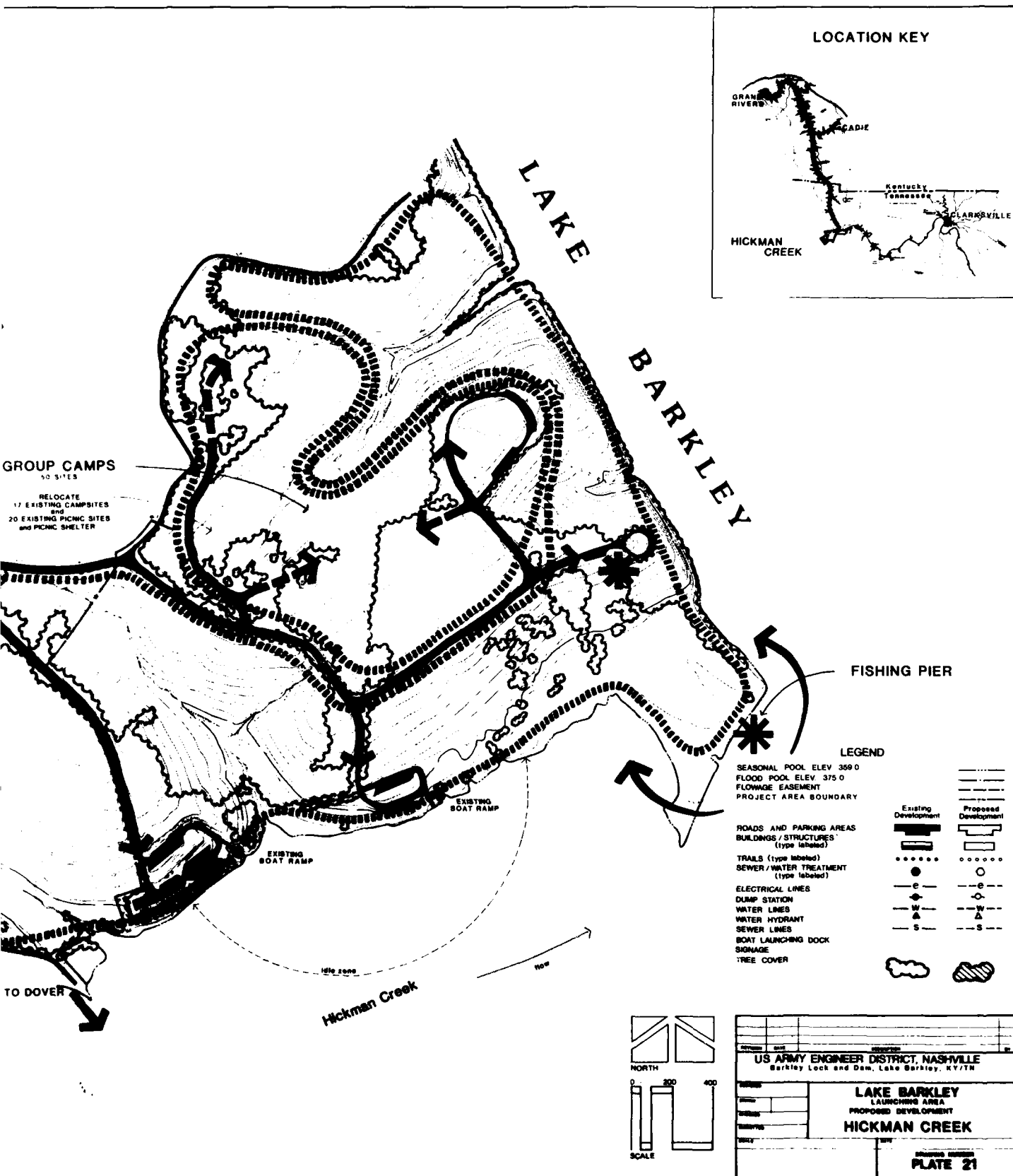
GATE

TO U.S. HWAY 79 2.5 miles

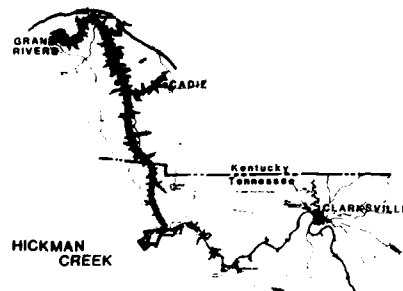
POTENTIAL BRIDGE CONNECTION TO DOVER

EXISTING
BOAT RAMP

Idle zone
Hickman Creek



LOCATION KEY



GROUP CAMPS

50 SITES

RELOCATE
17 EXISTING CAMPSITES
AND
20 EXISTING PICNIC SITES
AND PICNIC SHELTER

FISHING PIER

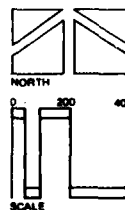
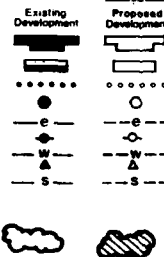
LEGEND

SEASONAL POOL ELEV 359.0
FLOOD POOL ELEV 375.0
FLOWAGE EASEMENT
PROJECT AREA BOUNDARY

ROADS AND PARKING AREAS
BUILDINGS / STRUCTURES
(type labeled)

TRAILS (type labeled)
SEWER / WATER TREATMENT
(type labeled)

ELECTRICAL LINES
DUMP STATION
WATER LINES
WATER HYDRANT
SEWER LINES
BOAT LAUNCHING DOCK
SIGNAGE
TREE COVER



US ARMY ENGINEER DISTRICT, NASHVILLE	
Barkley Lock and Dam, Lake Barkley, KY/TN	
LAKE BARKLEY LAUNCHING AREA	
PROPOSED DEVELOPMENT	
HICKMAN CREEK	
DATE	BY
DRAWING NUMBER	
PLATE 21	

LOCATION KEY

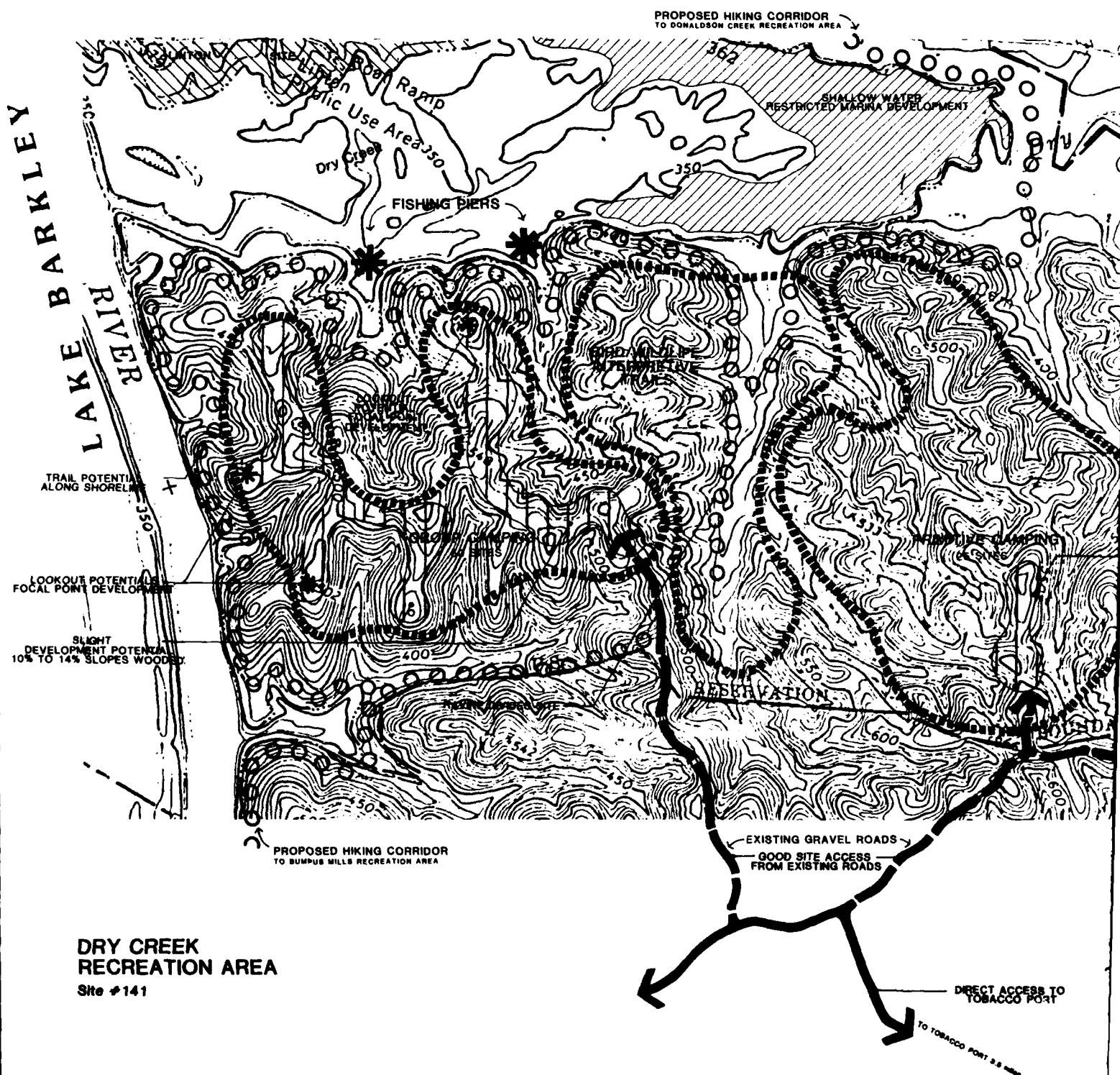
GRAND RIVER
CANAL
DRYDEN CREEK
CADIZ



CANAL ADDITION RECREATION AREA

Site #105

2



PROPOSED HIKING CORRIDOR
TO DONALDSON CREEK RECREATION AREA

SHALLOW WATER
RESTRICTED MARINA DEVELOPMENT

Creek

EXISTING ACQUISITION LINE

SLOPES EXCEED 14%
TOPOGRAPHY
THICK FOR ISOLATED
FRONTIER CAMPING

SIGHT
DEVELOPMENT POTENTIAL
100% TO 44% SLOPES WOODED

RESERVATION

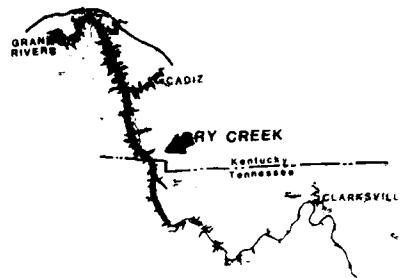
BOUNDARY

EXISTING GRAVEL ROADS
GOOD SITE ACCESS
FROM EXISTING ROADS

DIRECT ACCESS TO
TOBACCO PORT

TO TOBACCO PORT 8.8 miles

LOCATION KEY

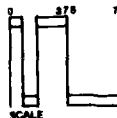
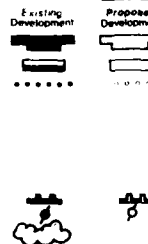


LEGEND

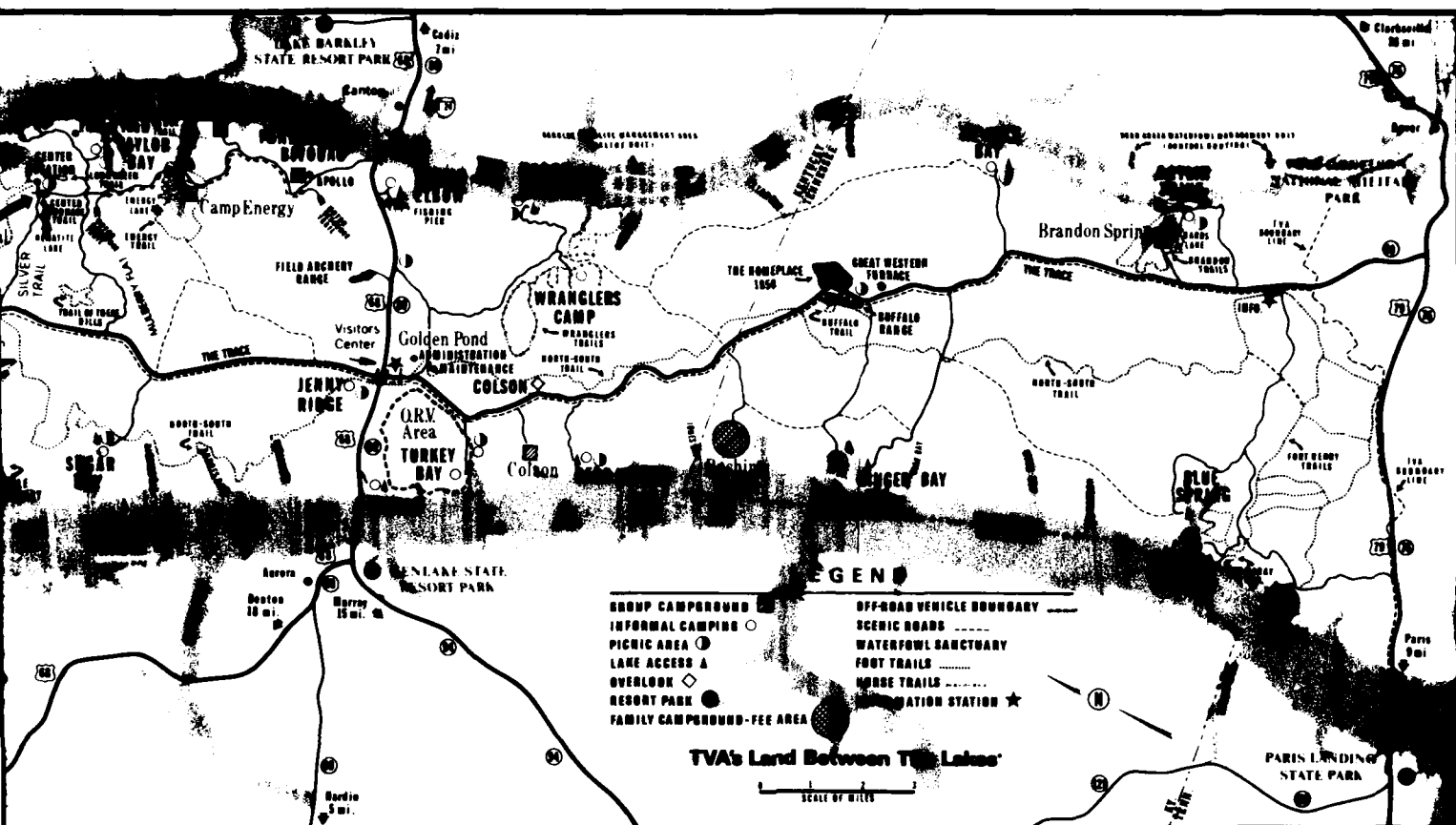
SEASONAL POOL ELEV 359.0
FLOOD POOL ELEV 375.0
FLOWAGE EASEMENT
RECREATION AREA BOUNDARY

ROADS AND PARKING AREAS
BUILDINGS / STRUCTURES
(type labeled)
TRAILS (type labeled)
SEWER / WATER TREATMENT
(type labeled)

ELECTRICAL LINES
DUMP STATION
WATER LINES
WATER HYDRANT
SEWER LINES
BOAT LAUNCHING DOCK
SIGNAGE
TREE COVER



US ARMY ENGINEER DISTRICT, NASHVILLE	
LAKE BARKLEY PROPOSED SITE	
DRY CREEK RECREATION AREA	
DATE	BY
DRAWING NUMBER PLATE 23	

[illegible]

THE UNIVERSITY OF CHICAGO

Energy Dam
Fenton
Gatlin Point
Jenny Ridge
Kuttawa Landing
Neville Bay
Nickell Branch
Pilgrims Rest
Pisgah Point
Ramey Overlook
Redd Hollow
Smith Bay
Star Camp
Sugar Bay
Taylor Bay
Turkey Bay
Turn Lakes
Wranglers Camp
Ginsler Ridge

BACK-COUNTRY CAMP

[illegible]

**BARKLEY LOCK AND DAM
LAKE BARKLEY, KY/TN
LAND BETWEEN THE LAKES
(TVA)**

U. S. ARMY ENGINEER DISTRICT, NASHVILLE

ONE Running shoe **ONE Running shoe**

INPV	CHECKS	TO ACCOMPANY
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DRAWING NO. 24

END

DATE
FILMED

4-83

DTI